The Farm

QUARTERLY, WINTER, 1954, FIFTY CENTS

UNIVERSITY OF NEBRASKA AGRICULTURAL LIBRARY DEC 9 1953

Face the Facts on Price Supports

STRONGER PULL, LONGER WEAR—

with straight-lug "wedge-in" action!

It takes plenty of *grip* to keep these ganged discs moving fast — and SUPER-SURE-GRIP, the world's most imitated farm tire, has what it takes, plus plenty more!

Here are 4 outstanding features that save you time and money at every turn! *They are why more farmers surveyed prefer Goodyear field-proved SUPER-SURE-GRIPS than the next 2 makes put together:*

1. RULER-STRAIGHT LUGS come closer together at shoulders—and so take *"wedge-in"* bites that hold soil in place, give you extra traction at no extra cost.

2. O-P-E-N C-E-N-T-E-R — a Goodyear FIRST, proved by years of farm experience. Enables lugs to bite deeper, pull better. Especially effective with *straight* lugs!

3. LONG EVEN WEAR — because Goodyear *straight* lugs work evenly against the soil, they wear evenly, last longer — and roll smoothly on the road.

4. RE-LUGGING SAVINGS — SUPER-SURE-GRIPS have the superior body strength needed for effective re-lugging and re-treading—and they save you big replacement costs!

It will pay you to talk over your farm tire needs with your helpful Goodyear Dealer. Goodyear, Farm Tire Dept., Akron 16, Ohio.

FIRST in Traction • FIRST in Long Wear • FIRST in Popularity!

THERE'S A SPECIALLY DESIGNED GOODYEAR TIRE FOR EACH VEHICLE ON THE FARM!

You'll save money, get better service from your truck, family car and farm implements — if you tire them all with Goodyears. That's why more people prefer Goodyears, for more uses, than any other tires on earth!

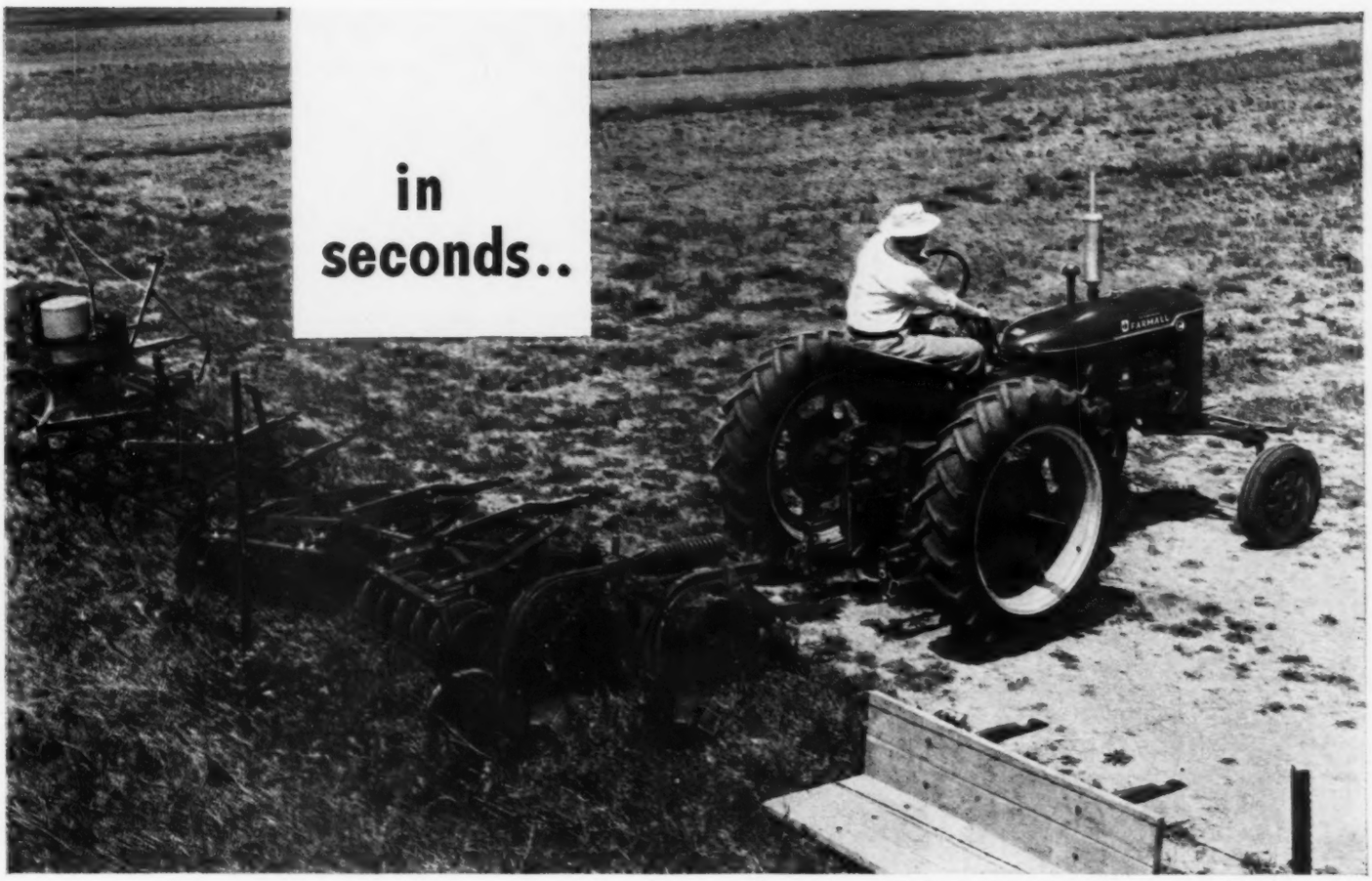
Super-Sure-Grip—T. M. The Goodyear Tire & Rubber Company, Akron, Ohio

GOODYEAR

Super-Sure-Grip Tractor Tires

"America's strength is in the land— Support your Soil Conservation Program"

We think you'll like "THE GREATEST STORY EVER TOLD"—every Sunday—ABC Radio Network—THE GOODYEAR TELEVISION PLAYHOUSE—every other Sunday—NBC TV Network



Now you can switch implements as often as you want, to keep work on schedule with Farmall Fast-Hitch. *No time lost!*

you Fast-Hitch and GO!

You can easily prove it to yourself. Just stop at your IH Dealer's and try Farmall Fast-Hitch

Get on the seat and back the Super C, lining up the Fast-Hitch sockets hydraulically to meet twin coupling beams on the implement. The beams slip into the sockets and *click* . . . you hitch *automatically*, ready to go with any one of more than a score of McCormick F-H implements.

Next, prove to yourself how easily and completely you control McCormick F-H implements with Farmall Fast-Hitch and 3 double-acting hydraulic cylinders. You power-lower and lift implements. You tilt or level F-H plows, and control draft point height. You have down-pressure to force penetration of cultivator sweeps. You can control right, left and rear gangs *together* or separately.

You can jack up the tractor to change rear wheel treads, lower the drawbar for no-lift hitching of trailing implements, and adjust drawbar height. You can control forward mounted and F-H implements together or separately, all with fingertip ease. And, Fast-Hitch gives you Remote-Control for trailing implements without buying an extra cylinder!

Try Farmall Fast-Hitch . . . *measure, compare, prove to yourself* how much time and work you can save with a Farmall Super C and Fast-Hitch on every 2-plow, 2-row job. Prove to yourself how easy it is to *back in* . . . *click* . . . and *GO!*

Your IH dealer will be glad to give you a complete demonstration any time you say . . . try Fast-Hitch and qualify for free membership in the 10-Second Club.

INTERNATIONAL HARVESTER

International Harvester products pay for themselves in use—McCormick Farm Equipment and Farmall Tractors . . . Motor Trucks . . . Crawler Tractors and Power Units . . . Refrigerators and Freezers—General Office, Chicago 1, Illinois.

International Harvester Company
P. O. Box 7333, Dept. SF-11, Chicago 80, Illinois

Please send me your free catalog on Farmall Fast-Hitch.

Name_____

Address_____

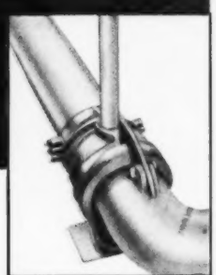
Post Office_____ State_____

I farm_____ acres. Principal crops_____

My IH Dealer is_____

There are REAL REASONS why SHUR-RANE® is better!

- the most soundly engineered system in the world —*specially designed and installed for your own soil, crops, land slope, weather, for your own water supply and labor conditions.*
- backed by a national organization that is technically and financially able to *guaranty* satisfactory performance.
- a SHUR-RANE system will never be an orphan — you can always be sure of service, parts and additions.
- a large staff of field engineers backs up your well-trained SHUR-RANE dealer in solving your individual irrigation problems.
- continuous improvements enable you to keep your SHUR-RANE system up-to-the-minute at all times and at lowest cost to you.



SHUR-RANE®

PORTABLE SPRINKLER IRRIGATION FOR SURE PROFITS!

The most important guaranty of getting a profitable, dependable and easily financed portable sprinkler irrigation system is THE REPUTATION AND ABILITIES OF THE MANUFACTURER AND HIS DEALERS. Each SHUR-RANE installation is backed by the entire resources and research facilities of Food Machinery and Chemical Corporation, the nation's leading manufacturer of irrigation equipment. Why gamble? Be sure with SHUR-RANE.

Send for our new booklet telling what YOU *want to know about portable sprinkler irrigation.* DO IT NOW. *It's authoritative. It's free. It's yours by simply filling out the coupon below.*

SHUR-RANE®
custom-engineered to your own farm
INSURES:

- Larger Yields
- Better Quality Yields
- Faster Seed Germination
- Water Conservation
- Better Fertilizing
- Drought Insurance
- Soil Conservation
- Labor and Time Saving

Partial view of the complete up-to-date engineering department maintained by SHUR-RANE.

Send for FREE booklet today

fmc TRADE MARK

SHUR-RANE IRRIGATION SYSTEMS, DEPT. FQ-W3
Food Machinery and Chemical Corporation
P. O. Box 145 • San Jose 1, California
If in one of the 14 Southeastern States, send to Florida Division, Lakeland, Fla.

Gentlemen: Please send me my free copy of "What you should know about Portable Sprinkler Irrigation."

NAME_____

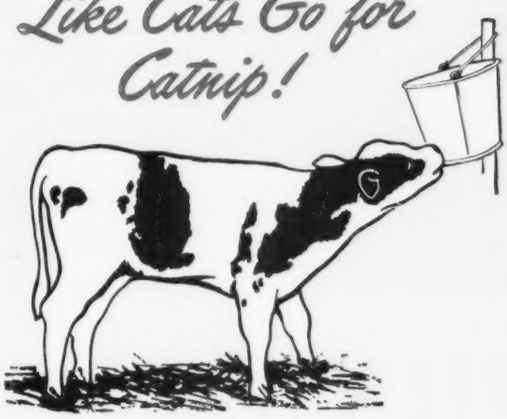
ADDRESS_____

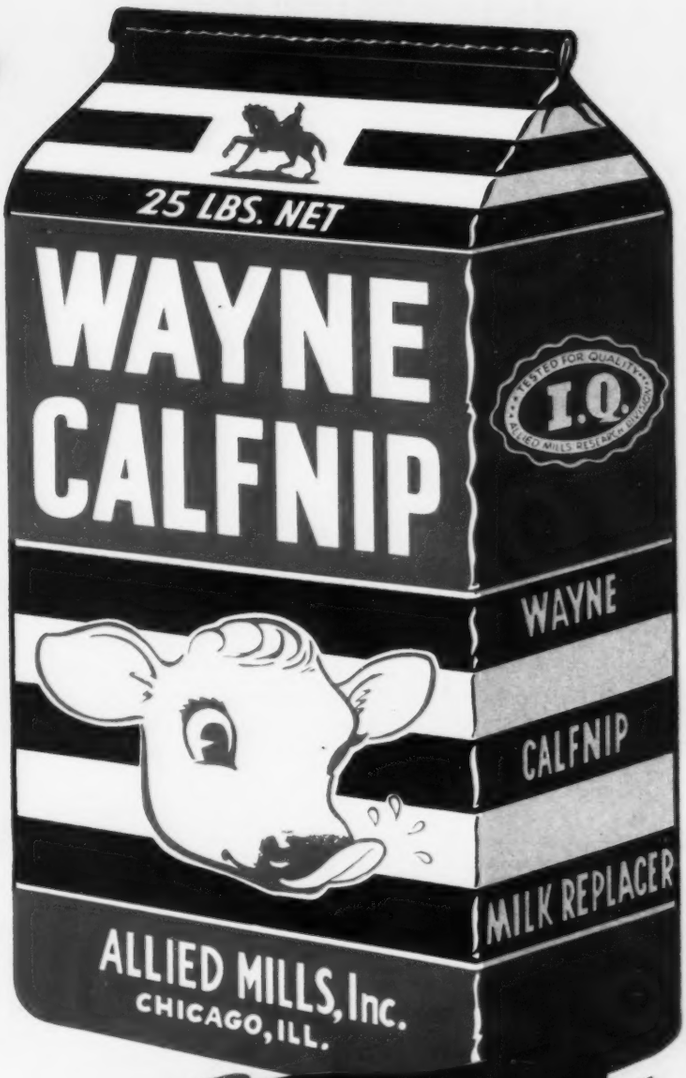
CITY_____ STATE_____

Farm Quarterly, Vol. Eight, No. Four. Editorial, Circulation and Executive Offices, 22 East 12th Street, Cincinnati, Ohio. Published quarterly by the Automobile Digest Publishing Corp.,
Copyright 1953.
Subscription price 50c a copy; $2.00 for one year; $3.50 for two years; $5.00 for three years. Add $1.00 per year extra for rates outside the U.S., Canada.
Entered as second class matter at the Post Office, Cincinnati, Ohio, under the Act of March 3, 1879. (Title Reg. U.S. Pat. Off.)

Calves Go for NEW Milk Replacer

Like Cats Go for Catnip!





Helps you

- **Save milk**
- **Reduce digestive upsets**
- **Cut labor costs**
- **Raise better calves at lower cost**

NEWEST in name
LONGEST in use

Proved by 20 Million *Calves!*

FREE! LATEST CALF FEEDING FACTS

See for yourself!—on your own calves—how this remarkable new milk-replacer *looks like milk, tastes like milk,* yet *out-performs* milk! Packed in convenient 25 lb. bags, with plastic inner-liner and handy measuring cup. Simple feeding guide printed right on the bag. See your Wayne Dealer.

ALLIED MILLS, INC. • FORT WAYNE 1, • INDIANA DEPT. FQ12

Send me bulletin on new developments in CALF FEEDING, at no cost or obligation.

Name_____

Address or RFD_____

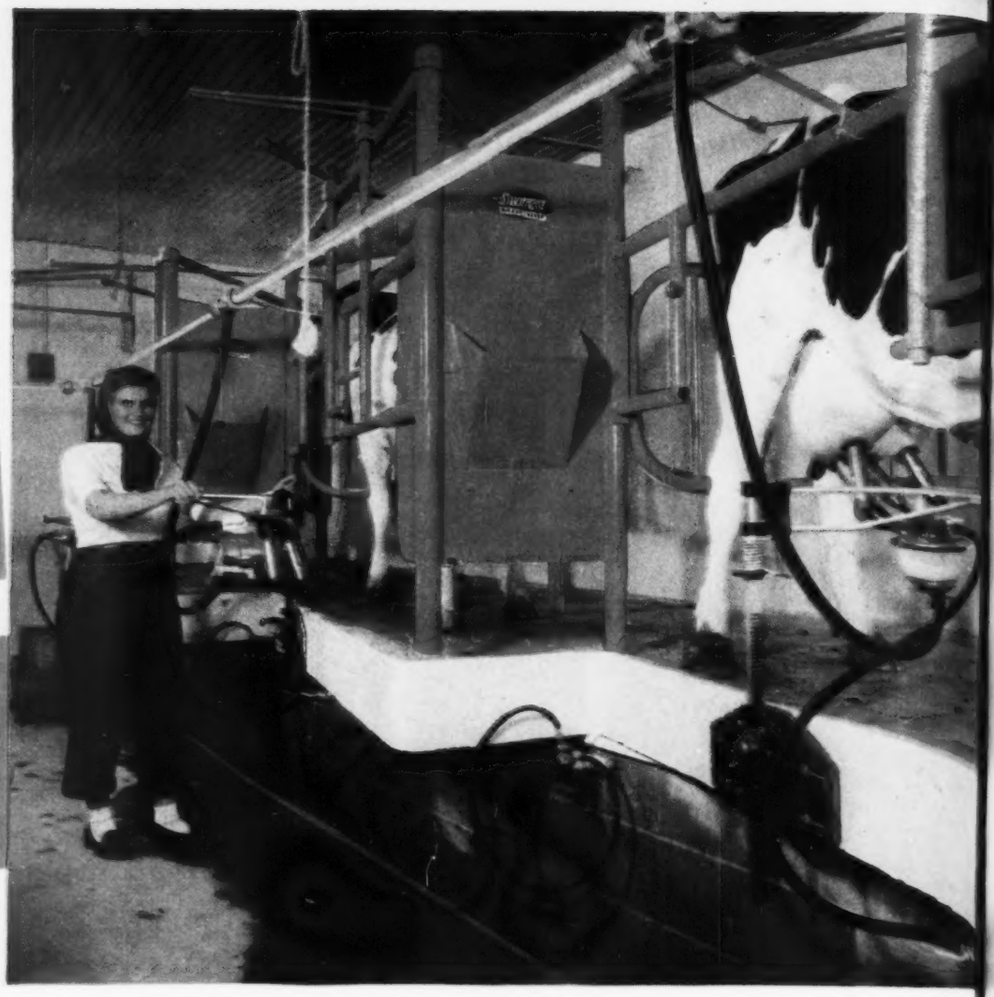
Town_____ County_____

State_____ I feed about_____ calves.

In a milking PARLOR..

On a Stanchion PIPELINE..

Or with a BUCKET..



Surge will MILK Your Cows!

...and the very first job of any milking machine is to get the cows properly and *safely* milked. No matter what kind of Surge you select you know ahead of time that any machine that bears the Surge nameplate does milk with the genuine Surge TUG & PULL that holds the teat cups down where they belong. You know that you will get a fast and *safe* job of cow milking.

Parlor, Pipeline or Bucket . . . no machine can do a safe, satisfactory and complete job of milking cows without TUG & PULL. Whether you milk a big herd in a parlor or a few cows in a lean-to shed, the Surge nameplate is your best guarantee of good cow milking and all that goes with it.

Write

BABSON BROS. CO.

2843 W. 19th St., CHICAGO

Or Contact Your Nearest Surge Service Dealer

COPYRIGHT 1953 BABSON BROS. CO.

ATLANTA · HOUSTON · KANSAS CITY · MINNEAPOLIS · SACRAMENTO · SEATTLE · SYRACUSE · TORONTO

COMING IN SPRING

THE FARM is quite prepared to go on record with the prediction that within the next decade any Midwest farm which does not have some form of supplemental irrigation will be regarded as old-fashioned. A full scale article on the subject, with actual costs, returns, water supply, and equipment required will be the feature of our Spring issue. Just as important, dollarwise, to the farmer is an article on the application of nitrogen and the high-analysis fertilizers, with emphasis on the new nitrogen sprays and the machinery to apply them.

As we go to press, hogs are slipping and beef has slipped, but what about sheep? Will they save the day? "Now is the Time to Go to Sheep" will tell why the practical farmer thinks this is the thing to do. Fences, like taxes, are always with us. "How to build a Fence that will last a Lifetime" will diagram, step by step, how to build such a fence. There's a review of all the recent cures for calf scours, including the latest one which uses blood plasma, vitamins, and predigested milk. Northern farmers know little about one of the basic U. S. crops, rice. Ancient Oriental methods will be contrasted to the modern American method, for rice culture in this country is highly mechanized, and has gone aerial. A new alfalfa, which spreads by rhizomes, will be important for those who are interested in permanent pastures and erosion control.

It was dry in most places last summer, and there were a lot of farm fires that weren't put out. All sorts of rural fire fighting schemes sprang up. THE FARM will describe the most practical of these plans for saving the barn and lowering insurance rates. Then there will be a piece on home water softeners, one on common wild flowers of the U. S., in color, and a foreign story about a famous Spanish court which settles irrigation disputes without fees, lawyers, records, or appeal.

There are all kinds of gimcracks on the market for the farmer to use in figuring the substitution values of feed grains. Most of them take a CPA to work—now THE FARM is publishing one for the basic crops and livestock that a child can use. There will be an article on the poultry industry, one on the Lydella Fly, an insect which was imported to do battle with the corn borer, and a short piece on the old time Medicine Man, who sold bottles of a mysterious and magical potion which was guaranteed to cure every ill of man and beast, and could be used as a soldering fluid and fly spray.

And there will be a story on the first acreage controls, which were made up of one part law and ten parts violence. It is the story of the Night Riders, who terrorized Kentucky when the practice of self-imposed tobacco quotas was getting its tryouts in the Bluegrass state.

THE FARM QUARTERLY
22 East Twelfth St., Cincinnati 10, Ohio

R. J. McGinnis.....Editor
Fred Knoop.....Executive Editor
Grant Cannon.....Managing Editor
Chas. R. Koch.....Associate Editor
Noel Martin.....Art Director
Betty K. Green.....Editorial Secretary
Aron M. Mathieu.....Business Manager

THE high-pitched whine of the ice saw on the pond is sure proof that winter has reached its peak. An ice-cutter can smell a spring thaw a week ahead of time.

Contents

THE FARM QUARTERLY

Winter 1954, *Volume* 8, *Number* 4

	Page
Stock	
Cattle Without Cash	32
Sugar Coated Feed	38
Garbage Fed Hogs	52
The Charbray	68
Caponizing for Profit	78
Soil	
Dry Farming	42
Lime	70
Crops	
Johnson Grass	60
Vegetables as a Field Crop	62
Tools	
Bulk Handling	48
Check Their Weights	66
Features	
When the Day's Work Was Done	36
Face the Facts on Price Supports	46
The Big Trek	56
Hooked Rugs	72
Possums	74
Wild Rice	76
Departments	
Letters	10
Poultry Yard	14
Over the Back Fence	16
The Dairy Barn	18
Farm Books	20
The Farm's Pictures	20
Index to Advertisers	143

Wherever you go...

All signs point to the outstanding quality and performance that have made more than 400 Auto-Lite products for cars, trucks, tractors, planes, boats and industry world famous . . . convincing proof, "You're always right with Auto-Lite."

Auto-Lite Spark Plugs . . . Ignition Engineered to give top performance in your car . . . include a complete line of Resistor, Standard, Transport and Marine types. (Patented U.S.A.)

Auto-Lite Original Service Parts include generators, voltage regulators, starting motors, distributors, coils and thousands of component parts, electrical and mechanical, engineered for best car performance.

ORIGINAL AUTO-LITE SERVICE PARTS

Auto-Lite Wire and Cable, in spools and package sets . . . a standard of quality for every automotive, marine, aviation and industrial electrical use.

Auto-Lite Bull's Eye Sealed Beam Units are designed for safe night driving. They concentrate more light on the road . . . burn even when the lens is cracked or broken.

Auto-Lite "Sta-ful" Batteries need water only 3 times a year in normal car use. And they last longer!

THE ELECTRIC AUTO-LITE COMPANY ○ TOLEDO 1, OHIO

Fabulous Filet Mignon

"*That's the tenderest, juiciest steak I ever put in my mouth.*" A familiar tribute to a slice of succulent top grade beef, but chances are the author of those words of praise hadn't the slightest conception of the work, planning and expense which preceded his delightful mouthful.

Take feeding for example, little does our gourmet friend realize the painstaking care with which top grade cattle are fed. The most exacting formulas are worked out and then administered with equal precision. Many of these feeding formulas contain Seagram Dried Grains, for it has been learned through years of research that Seagram Dried Grains are rich in proteins, minerals, B-vitamins and many other nourishing growth promoting factors.

This nutritious feed supplement is made available to feed dealers so that they can supply their cattlemen customers with the finest feeds technologists can produce.

Seagram

SERVICE TO AGRICULTURE

Joseph E. Seagram & Sons
Louisville, Kentucky

At the first sign of disease in your herd . . .

Call your veterinarian for prompt, accurate diagnosis

When your practiced eye detects the first tell-tale symptoms of disease – act fast.

Isolate the sick animal immediately.

Then call your veterinarian *at once.*

Prompt, accurate diagnosis . . . correct early treatment . . . help prevent complications, and minimize economic loss.

Your veterinarian—with years of intensive scientific training and wide professional experience – is highly skilled in the techniques of diagnosing the cause of trouble, and helping to start your animal on the road to recovery.

In treating your livestock, he frequently relies on Squibb for many essential, modern veterinary drugs.

Based on nearly 100 years of experience in producing drugs of precision and accuracy . . . Squibb provides dependable veterinary products of highest uniformity, purity and efficacy.

Prompt diagnosis, proper use of proved drugs . . . combined with careful management...can help reduce the multi-million dollar disease toll suffered by America's livestock and poultry industry yearly.

When disease threatens your herds, call your veterinarian *promptly.* He's your friend in time of need.

CONSTANT RESEARCH
Squibb scientists are constantly seeking and discovering new and better drugs . . . to aid your veterinarian in bringing better health to your livestock.

E. R. SQUIBB & SONS
Division of Mathieson Chemical Corporation
745 Fifth Avenue, New York 22, N. Y.

For prompt, accurate diagnosis, always consult your veterinarian.

SQUIBB – A NAME YOU CAN TRUST

B.F. Goodrich

gives you more tractor tire for your money in the

new Power-Grip

BIGGER CLEATS—BIGGER SHOULDERS on this new B. F Goodrich Power-Grip tire. Those big cleats are curved to prevent bending. They're broad at the base to give extra rigidity

MORE RUBBER—MORE FOR YOUR MONEY. That's what farmers like about the BFG Power-Grip tire. The bigger area on the face of the cleat means more pulling power. And it's a self-cleaning tread.

Bigger cleats—bigger shoulders—bigger all around

It's the tire that comes on new tractors

HERE's the tire that looks bigger because it is bigger. And it will do a great job for you in any type of farming.

The new B. F. Goodrich Power-Grip tire has bigger cleats and bigger shoulders. The knife-action cleats and king-size shoulders give deep penetration. And once the cleats are in the ground, there's a bigger cleat face area to press against the soil—to hold and cut down on slippage. You get maximum drawbar-pull. When working heavy implements on wet ground or slick cover crops, you can still keep to your work schedule with these powerful tires.

Measure the big, broad tread of the Power-Grip tire. You'll find that no leading make of tire is wider than Power-Grip. This means that the tire has a larger footprint, gives greater flotation. Count the cleats on leading makes. You'll find that time after time, the BFG tire has more cleats than other makes. More cleats to give a better bite.

The bigger Power-Grip shoulders give you longer wear off or on the pavement. They also add traction, provide a firm grip in reverse as well as forward. You work more land in less time because these square-cut shoulders defy slippage.

Why not replace your worn tires with the tires that come on new tractors? You can see America's newest tractor tire at your B. F. Goodrich retailer's store. These tires sell at standard prices. Look for retailer's address under Tires in the Yellow Pages of your phone book. Or send coupon.

RESEARCH KEEPS B.F.Goodrich FIRST IN RUBBER

The B. F. Goodrich Company
Dept. F-201, Akron 18, Ohio

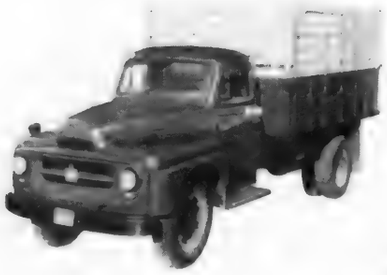
Please send me free information on:
☐ Power-Grip tires ☐ "Easy Steer" front tires
☐ Truck tires ☐ Tubeless passenger car tires
☐ Name of my nearest retailer

Name_____

Address or RFD_____

Town_____

State_____



International Harvester

...one of the many leading engine manufacturers to use Perfect Circle chrome rings as original equipment and 2-in-1 chrome sets for authorized replacement service.

Engineers know that the most important piston rings in an engine are the top compression rings. For they operate where heat is highest, where pressure is greatest, where lubrication is poorest.

That's why Perfect Circle's 2-in-1 Chrome Piston Ring Set for replacement service provides a chrome-plated top compression ring as well as chrome-plated rails for the oil ring. This combination will seal compression and control oil for *over twice as long* as old-style rings...and, because 2-in-1 requires no tedious break-in period, normal engine operation is recommended immediately after installation!

No doubt about it...2-in-1 is the truly modern replacement piston ring set for trucks and tractors alike! Perfect Circle Corporation, Hagerstown, Indiana; The Perfect Circle Co., Ltd., Toronto.

Solid Chrome on BOTH Top Compression and Oil Rings Gives Complete Wear Protection Through Entire Area of Ring Travel—More than Doubles the Life of Pistons, Cylinders and Rings.

Perfect Circle

PISTON RINGS

The Standard of Comparison

LETTERS

The Time to Plow

Sirs:

I look forward to each issue of THE FARM and every article is read with appreciation of its useful information. BUT—how about "Points for the Plowman" (Fall—1953). The picture on page 58 is quite contradictory to the intent of the subject.

Look at the mud and dirt collected on the rear wheels of the tractor and every turned slab shines. TOO WET. That furrow wheel is pressing a road slab plow sole, then next summer the owner will wonder why the surface water stays after each rain. Tile not working? How can they with a water-tight plow sole roof over them? And remember, if water and air can't get down, how do you expect crop plant roots to break thru? Why not wait till its fit and do the job right—for less.

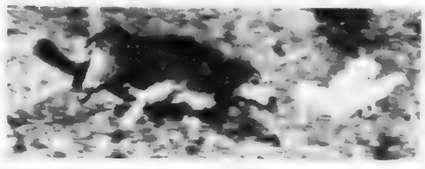
Now for the plow pictured with the wrong bottom. Look at the pig-eared slabs overlapping the next furrow. It takes at least one extra operation to bring these down, a needless expenditure of time, labor and costs and a lot of wasted wear and tear on that part of the operator which occupies the tractor seat. Also, one plow bottom is cutting more than the other for you can readily see the paired furrows ahead of the operation.

No, I don't always do the championship job myself but I do try to avoid some of these common slip-ups. And this hardpan at furrow depth is a serious one from the standpoint of erosion and retarded crop growth.

Harold E. Jamieson

Fort Recovery, Ohio

Mr. Jamieson puts his finger on one of the plowman's problems, for no two farmers will agree what is "exactly the right time to plow." There is a gloss at the top of the furrow in the picture, but a nice crumbling effect further down.



KANSAS culling a sick pullet.

Sirs:

We have enjoyed very much the write-up about our farm in the last issue of THE FARM QUARTERLY. We wanted to tell you that we have had bad luck with our dog, Kansas. She was bitten by a rat that had been poisoned by 10-80 and died. We wondered if your photographer got a picture of her when he was here. We don't have one ourselves and would like one very much.

Hagerstown, Indiana — Omer F. Smith

A picture of Kansas, the dog Mr. Smith had trained to cull chickens, is on its way with our condolences at the loss of his friend.

The Borders Treatment

Sirs:

Has a check been made on Mr. Forest Borders' use of complete fertilizer lately? He seemed to have made a very successful start.

George E. Dix, M.D.

Coos Bay, Oregon

Mr. Borders reports that he continues to use trace minerals in about the same application as reported in THE FARM, Spring, 1950, and

(*Continued on page* 12)

Try Phosphate Rock on Your Farm

CROP RESULTS THE COUNTRY OVER SHOW HOW WELL IT PAYS

CALVES GAIN 118 POUNDS MORE PER HEAD ON FLORIDA PASTURE

"Since applying Phosphate Rock, 2000 lbs. per acre," says P. E. WILLIAMS (above), Crescent Valley Ranch, Davenport, Florida, "good-quality Carpet Grass has replaced weeds and native grasses. Our entire calf crop is averaging 405 lbs. per head—118 lbs. MORE per head than top calves did, before using Rock. Our calf crop has increased from 60% to 85%, calves are healthier and stronger, and improved bone structure enables them to carry added weight."

16½ BU. MORE OATS PER ACRE —1st-YEAR PROFIT IN GEORGIA

"Working in 2000 lbs. Phosphate Rock per acre, in addition to my regular application of 600 lbs. of 4-12-12, increased Oat yield by 16½ bu. MORE per acre, as against 4-12-12 without Rock. Rock paid a profit the first year and will pay further returns on Soybeans, Small Grains and Crimson Clover to follow in the rotation."

VIRGIL BLACK, Millen, Ga.

ALABAMA GROWER GETS 5-FOLD HAY INCREASE—GOOD 1st-YEAR PROFIT

"In Fall '51 we applied Phosphate Rock, 2,000 lbs. per acre, before seeding to Caley Peas, Crimson Clover, Vetch and Dallis Grass. Soil tests showed a pH of 4.7 to 5.1, so we disked-in limestone with the Rock. Yields, checked in April '52, showed 21,440 lbs. green weight per acre with Rock, against 4,320 lbs. without Rock. That's a fine 1st-year return, with more to come."

J. C. WEBB, of WEBB BROS., Marion, Ala.

$30.65 EXTRA HAY PER ACRE 1st-YEAR PROFIT ON WEST VIRGINIA FARM

"In seeding Alfalfa in April '51, I applied 500 lbs. 2-12-12 per acre over the entire field, and worked in 1500 lbs. of Rock per acre on part of the field before seeding. Where both Rock and 2-12-12 were applied, we got 9,588 lbs. dry hay per acre, worth $215.73. With 2-12-12 without Rock, the yield was 8,226 lbs., worth $185.08 per acre—$30.65 MORE hay per acre the 1st year."

PAGE F. SIONS, Martinsburg, W. Va.

ROCK GIVES VIRGINIA GROWER 7½ BU. MORE SOYBEANS PER ACRE

"We applied 2000 lbs. Rock per acre to a Soybean field, which was fertilized with 2-12-12, 300 lbs. per acre, as usual. Rock increased yield by 7½ bu. MORE beans per acre, repaying the cost of the Rock plus $4.38 per acre besides, and 4 or 5 following crops will benefit from this Rock application."

W. P. GRIMSTEAD, Norfolk, Va.

BUILD and maintain fertility the low-cost, economical way—by applying AA QUALITY Ground Phosphate Rock *as a supplement to your present fertilizer program.* See how the additional phosphorus pays its own way—and increases returns from the superphosphate and mixed fertilizers applied to feed the various crops in the rotation.

Disk-in a liberal application, 1000 to 2000 lbs. per acre—Rock usually pays for itself the first year and keeps on paying dividends for 6 to 8 years, as the phosphorus in the Rock is steadily converted by the action of soil acids into soluble form for plant use.

Worked in deeply, Rock encourages deeper root growth, builds a better soil by increasing organic matter and nitrogen, increases moisture-holding capacity.

If your farm is located within 150 miles of any A.A.C. office listed below, drop us a line and our Soil Service will analyze your soil and recommend a complete program to show you the best return for your fertilizer dollar—no cost or obligation to you.

AA QUALITY® Ground Phosphate Rock is mined and refined by one of the world's oldest and largest producers of quality plant foods—the makers of AGRICO®, the Nation's Leading Fertilizer and 18% NORMAL®, the Low-Cost, Extra-Value Superphosphate.

The AMERICAN AGRICULTURAL CHEMICAL Co.

Alexandria, Va.	Cincinnati 17	Fulton, Ill.	Montgomery 2, Ala.	Pierce, Fla.
Baltimore 24	Cleveland 11	Greensboro, N. C.	New York 7, N. Y.	Saginaw, Mich.
Buffalo 6	Columbia, S.C.	Henderson, N. C.	Norfolk 6, Va.	Savannah, Ga.
Carteret, N. J.	Detroit 31	Houlton, Maine	No. Weymouth, Mass.	Spartanburg, S. C.
Charleston, S. C.	East St. Louis, Ill.	Laurel, Miss.	Pensacola, Fla.	Phoenix, N. Y.

"ROCK PROFITABLY INCREASES PASTURE YIELDS AND QUALITY," SAYS WELL-KNOWN TEXAS BREEDER

Left, some of the outstanding Brahman cattle bred by J. D. HUDGINS Estate, Hungerford, Texas, which ships stock to many parts of the world. Says TEMPLE KOONCE, of this organization: "We topdress both hay meadows and pasture-land with AA QUALITY Ground Phosphate Rock, and get substantially increased yields of legumes and grasses. Cattle prefer the more palatable, Rock-fertilized pastures, a sure indication of higher mineral and protein content."

$271. PER ACRE EXTRA INCOME IN 6-YEAR ROTATION ON IOWA FARM

"I work in 1000 lbs. AA QUALITY Ground Phosphate Rock per acre ahead of each rotation and also use increased amounts of mixed fertilizer or superphosphate for each crop in the rotation. This has increased crop returns by an average of $271. in a 6-year rotation, as against returns from my previous fertilizer program—$5.66 EXTRA return from each $1. invested in Rock and extra fertilizer."

KENNETH GRAY, Sabula, Iowa.

OHIO FARMER DOUBLES ALFALFA YIELD WITH PHOSPHATE ROCK

"We applied a 6-ton load of AA QUALITY Ground Phosphate Rock to a 2-year-old, 18-acre Alfalfa meadow and, on the first cutting after applying the Rock, we checked the number of bales and found that we had harvested TWICE as many as the year before we applied the Rock. Our experience with AA QUALITY Ground Phosphate Rock is both pleasing and profitable."

W. R. BROOKS, Marion, Ohio.

$241.20 1st-YEAR PROFIT ON THIS 9-ACRE FIELD IN PENNSYLVANIA

"In Fall '51 we applied AA QUALITY Ground Phosphate Rock, 1500 lbs. per acre, on Pastures, Mixed Hay and Alfalfa," says Dr. FRANCIS C. HEIKES, of Mechanicsburg, Pa., shown above, at right, with WARREN WEAVER. "Our 60-acre Ladino-Orchard Grass pastures carried 98 head of Angus cattle all Summer and they are still grazing these rotated pastures on Oct. 20, despite a long, dry spell. Alfalfa on 3 cuttings made 5 tons per acre and we could have cut a 4th time. A 9-acre hay field, which had never yielded a ton an acre, produced 3 tons per acre of excellent quality hay, worth at least $20. a ton. Rock paid us a 1st-year NET profit of $241.20 on this field, with more dividends to come."

ROCK PAYS AS SUPPLEMENT TO FERTILIZER PROGRAM IN INDIANA

"I'd been getting spotty clover stands, so in Spring '50 I applied 1150 lbs. Rock per acre on a 12-acre field and worked it in. Throughout the rotation, I continued my regular fertilizer applications for each crop. Oats did better than ever and for the first time I got a perfect stand of sweet clover, waist-high on both high and low ground. I got 10 bu. MORE corn per acre than this field ever produced before, and Soybeans yielded 35 bu. per acre. Results were so good I'm covering my entire farm with Rock."

LERLAND FOGWELL, Ft. Wayne, Ind.

$197.40 EXTRA INCOME PER ACRE IN 4-YEAR ROTATION IN ILLINOIS

"To build and maintain fertility, I work in 1000 lbs. Rock per acre once every 5 years. In addition, I am using heavier applications of superphosphate and mixed fertilizers for each crop in the rotation. This program has increased my crop income by $197.40 per acre in a 4-year rotation. I get back $7. in return from each $1. invested in Rock and extra fertilizer."

ROBERT BEAM, Newton, Ill.

$309. EXTRA CROP INCOME IN 5-YEAR ROTATION IN MISSOURI

"Making up for phosphorus-deficiency by applying Phosphate Rock, 1800 lbs. per acre, ahead of 1st-year wheat in my rotation of Wheat, Wheat seeded to Red Clover, Red Clover and Lespedeza, Corn, Corn, and then using enough complete fertilizer for each crop, has increased crop income an average of $309. per acre in a 5-year rotation, at an extra fertilizer cost of $6.40 per acre per year."

W. G. EAKIN, Pacific, Mo.

FROM OUR MINES TO YOUR FARM →

FOR REAL ECONOMY, USE

AA Quality Phosphate Rock

FINELY-GROUND FLORIDA PEBBLE PHOSPHATE ROCK

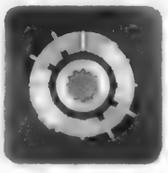
When Tractor Hydraulic System has a VICKERS® Balanced VANE TYPE PUMP

Under the very best conditions, cold weather puts a strain on starting equipment. Every part of the engine is stiffer, and the cold seriously decreases the power of the starting battery. If the hydraulic system has a pump with fixed teeth or lobes, this starting load may be seriously increased above normal

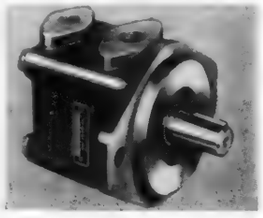
Vickers Balanced Vane Type Pumps *start at practically no load.* At rest and at normal starting speeds, the sliding vanes are retracted . . . only after the engine fires do the vanes extend and pumping begins. As a result, cold weather starting is much easier when a Vickers Vane Type Pump is used.

Make sure the hydraulic pump on your next tractor is a Vickers Vane Type Pump.

Schematic diagram of Vickers Balanced Vane Type Pump showing how sliding vanes are retracted at normal engine cranking speeds. No oil is pumped and there is practically no starting load.



Similar diagram of Vickers pump showing how pump vanes are extended when engine is running. Pumping then begins and continues at all engine speeds.



Vickers Balanced Vane Type Pumps for mobile equipment are available in several basic sizes and delivery ratings suitable for all farm tractor applications.

6610

VICKERS Incorporated • 1534 OAKMAN BLVD., DETROIT 32, MICH.

Application Engineering Offices: ATLANTA • CHICAGO (Metropolitan) • CINCINNATI • CLEVELAND DETROIT • HOUSTON • LOS ANGELES (Metropolitan) • NEW YORK (Metropolitan) • PHILADELPHIA (Metropolitan) • PITTSBURGH • ROCHESTER • ROCKFORD • SEATTLE • TULSA • WASHINGTON • WORCESTER

ENGINEERS AND BUILDERS OF OIL HYDRAULIC EQUIPMENT SINCE 1921

is happy with the result. He also uses 4-12-12 and lets the legumes supply most of the nitrogen. His greatest need right now, he says, is rain.

Landlord in Search of a Tenant

Sirs:

In "LETTERS" of your current Fall issue, the one on Tenant-Landlord relations by Mrs. Allen Fuller has given me some food for thought.

I am a city man. I have had for some years the idea of sometime in the near future quitting the city for the quiet and peace of rural living as opposed to the racket and tensions of New York City.

With this in mind my question is—Are there young married couples like Mrs. Fuller who, while not financially able to buy their own farms, would like to make an arrangement with someone like myself who wants a farm and someone competent to run and manage it? I would furnish the farm and the finances to equip it, they would furnish the know-how and labor to run it properly. Within a few years I would retire from city business to live on it and help with its operation. This is not to be a "cold" business investment, this is my future and my wife's future too.

N. B. Feuerman

45 West 45th Street
New York City, N. Y.

The Dogie Song

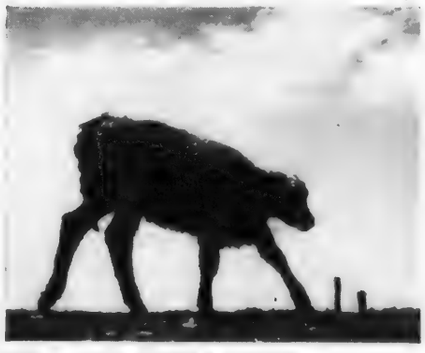
Sirs:

This morning while resting I was reading THE FARM and sure got a kick out of the "Git along little dogie" caption. Here is a free Spanish translation that I think your Spanish-speaking readers will enjoy.

Andale becerrito pando, vete con tu mama,
que ay andan los zopilotes, y el potrero seco esta;
se ven tus costillas flacas y tus orejas colgando,
si no quieres morir pronto, vete con tu mama!

Jesus Chapa-Badillo M.D.

Laredo, Texas



GIT ALONG LITTLE DOGIE

git back to your mammy;
there's black buzzards circling
and the pasture is dry;
your gant ribs are showing,
your ears are bare leather;
get back to your mother
or you're bound to die.

Sirs:

I loved the caption on the Texas dogie picture and would like to compose music for it. There really should be a chorus to make a complete song of it. Do you have such?

Caroline Troy

Warren, Rhode Island

Our man in charge of poetic captions has come up with the following as a chorus for his dogie verse:

Dry pastures, dry pastures, no feed for the cattle,
Dry pastures, dry pastures, no clouds in the sky;
Dry pastures, dry pastures, no feed for the cattle,
No grass on the ranges, no clouds in the sky.

class for class you get MORE POWER with ECONOMY in Massey-Harris Tractors

1-PLOW PONY — 62 cu. in. engine. 3 forward speeds, 2-way Depth-o-matic Hydraulic System.

2-PLOW COLT — 124 cu. in. engine, 4-forward speeds, 2-way follow-up Depth-o-matic Hydraulic System, 3-point hitch.

2-PLOW MUSTANG — 140 cu. in. engine (gasoline or distillate), 4-forward speeds, 2-way follow-up Depth-o-matic Hydraulic System, 3-point hitch.

3 PLOW 33 — 201 cu. in. engine, 5-forward speeds, 2-way Depth-o-matic Hydraulic System, Live P.T.O.

3-4 PLOW 44 — 260 cu. in. engine (gasoline, diesel, distillate, L.P.), 5-forward speeds, 2-way Depth-o-matic Hydraulic System, Live P.T.O.

4-5 PLOW 55 — 382 cu. in. engine (gasoline, diesel, distillate, L.P.), 4-forward speeds, Special Depth-o-matic Hydraulic System.

HERE'S power that makes every row or furrow seem shorter . . . that lets you run in a gear higher on jobs where other tractors have to dig in.

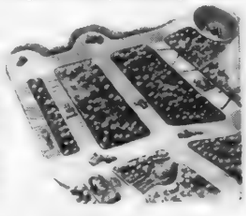
Try it yourself. Take a Massey-Harris through the tough ground. Give it the jobs that make your present tractor bear down and lug — and feel the Massey-Harris pull away with them.

Then compare the Massey-Harris to other tractors you've driven. Compare it for quick-responding power . . . for adaptable speeds, traction and hydraulic control — for all of the features you want in a tractor.

You'll find a Massey-Harris gives you the reserve power, the low-cost operation, the control, and adaptability you need to cut production and labor costs.

And you'll find Massey-Harris tractors mount big capacity tools that help you cover more acres on less fuel, in less time . . . that handle more jobs around your place with cost-reducing power.

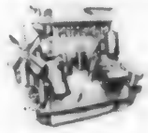
See your Massey-Harris dealer for complete details. Ask for a demonstration. For free catalog write The Massey-Harris Company, Dept. L-222, Racine, Wis.



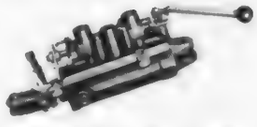
On this scientifically designed test track Massey-Harris engineers put machines through experimental runs that surpass anything they may undergo in the field — telescope into days, testing that otherwise might require a whole season. This thorough testing is one reason why Massey-Harris gives you so much more in performance, long life, and low operating costs.

Make it a Massey-Harris

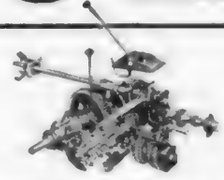
Parts and Service through more than 2500 authorized dealers



Massey-Harris 4-cylinder engines are high torque, low friction design . . . lug better in the tough spots, recover quickly . . . cost less to run and maintain.



Depth-o-matic Hydraulic System gives smooth 2-way control of both mounted and pull-behind tools. Holds constant depth. Selective control and delayed action.



Power saving transmission design means more pulling power at the drawbar on less fuel. Precision cut gears, oil-bath lubrication, low maintenance.

Full-width, operator's platform, easy-to-reach controls, and Velvet Ride Seat help you finish the day fresher. Balanced hood design gives equal vision to both sides.

STONEMO GRIT

helps you cut feeding costs...

get MORE EGGS-MORE MEAT

—say leading breeders!

"More eggs at less feeding cost"

Chas. L. Manwaring, Manwaring Leghorn Farm
Mentone, Indiana

"Based on our experience of 41 years of successful egg farming and poultry breeding ... we believe Stonemo's hard, rough grinding surfaces help birds get more nutrient value from their feed, which means more growth or more eggs at less feeding cost."

"Improves feed utilization"

M. R. Irwin, Colonial Poultry Farms
Pleasant Hill, Missouri

"We have used Stonemo Grit on our U. S. Record of Performance Central Breeding Farm for about 10 years. We find that Stonemo Grit improves feed utilization and helps us to get the best performance from our birds."

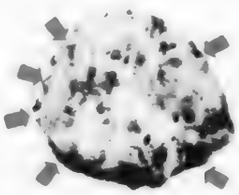
"Necessary part of ration"

Roy M. Durr, Durr Hatchery
Atlanta, Georgia

"We make it a regular practice to begin feeding Stonemo as soon as our chicks get their first grain. Then we leave Stonemo before them as long as they stay in our breeder flock... it is one of the necessary ingredients of the total ration."

Everywhere leading breeders are saying: STONEMO Granite Grit helps make feeds do more work... helps reduce feeding costs! The extra grinding surfaces of STONEMO grind open many tough cellulose "capsules" in feed—releasing more nutrients for conversion into extra eggs, or weight gains. Further, STONEMO *will not dissolve* and upset the carefully-planned mineral balance of the ration. Good feed and good grit are your "partners for profits!" Get STONEMO—in the 80-lb. economy bag—from your feed or poultry supply dealer today!

STONE MOUNTAIN GRIT COMPANY, INC.
Executive Offices and Quarry: **LITHONIA, GEORGIA**
Branch Quarry: **BARRE, VERMONT**



COARSE SIZE STONEMO HARD GRIT MAGNIFIED 5 TIMES

STONEMO the Grit

with the "EXTRA GRINDING SURFACES"

Poultry Yard

Life in an Egyptian Incubator In Egypt, the operator of an incubator incubates himself along with the eggs so that he can act as thermostat for the hatch. The incubators are mud-brick buildings with a central corridor connecting six or eight domed rooms. Each room holds 6,000 eggs and is heated with a tray of burning straw. Once the eggs are arranged on the floor of the room and the fires are started, the operator lives, eats, and sleeps in the incubator. Without a thermometer to guide him, he maintains a percentage of hatch that compares favorably with our best mechanical incubators.. When he senses a change in temperature, he tests the eggs against his

eyelid. If they feel cool, he pulls the rags out of an air vent beneath the fire tray for draft and adds more fuel to the smouldering straw; if they are too warm, he removes a plug in the dome of the room and lets out some of the heat. On the seventh day, he candles the eggs by holding them up to a beam of sunshine. On the eleventh day, he lets the fires die out and from then until hatching the eggs are warmed by the heat generated by the developing embryos and the warmth of the mud walls. After the hatch, he can take a cool breath of fresh air and give his eyelids a rest.

Vaccinating by Spray-gun Using forced air from an electric paint sprayer, Dr. E. J. Johnson, of the Virginia Agricultural Experiment Station, is able to give day-old chicks Newcastle vaccine by what he calls nebulization. The nebulization method gives the same immunity as the nose-drop vaccination and takes less than one-tenth the time. The day-old birds are treated in a cellophane covered box, 100 chicks at a time, as they are taken from the incubator. A second method is to spray the chicks with an atomizer under the brooder house immediately after hatching and then hit them again at four weeks. Dr. Johnson reports that vaccine for nebulization will soon be on the market.

The Eaton 2-Speed Axle

"Saves hauling time, trouble and expense"

... says successful Ohio farmer

"SOFT ground doesn't stop us from getting our crops out of the field. Our Eaton-equipped International will go just about anywhere — and with a full load," says L. A. Squire, prominent farmer, Lagrange, Ohio.

"Low-range gears of the Eaton 2-Speed Axle provide the off-the-highway performance we need in a truck—slow, steady pull for hauling out of the fields and over boggy back roads. The Eaton 2-Speed is ideal for harvesting—we can match the speed of a combine, crawl over ditches and spots that would stop a truck with an ordinary axle.

"On the highway we run to market and back in the least possible time. The Eaton 2-Speed Axle saves us both time and gas. High-range gears allow us to travel at good speeds with the engine taking it easy. That saves a lot of engine wear. We have proved the Eaton 2-Speed Axle is an investment that saves hauling time, trouble and expense."

Any truck dealer will be glad to show you how the Eaton 2-Speed Axle can take time, trouble and cost out of your farm hauling. Ask him for a demonstration.

"EASY TO DRIVE"—Gilbert, Earl and Gerald Squire *(left to right)*, sons of L. A. Squire, agree that an International with an Eaton Axle is easy to handle. "It's fun to drive a truck with an Eaton Axle," says Gilbert. "There's always a right gear for the job."

INTERNATIONAL DEALER Omer Laubenthal *(left)*, Elyria, Ohio, says, "An Eaton-equipped International is ideal for farm hauling. It's more flexible—provides the pulling power for field work and the road speeds for over the highway travel. About 90 per cent of our trucks of 1½-ton capacity and over go out Eaton-equipped." Ray Dreger, Service Mgr., on right.

EATON

EATON MANUFACTURING COMPANY, CLEVELAND, OHIO

2-SPEED *Truck* AXLES

MORE THAN 1½ MILLION EATON AXLES IN TRUCKS TODAY

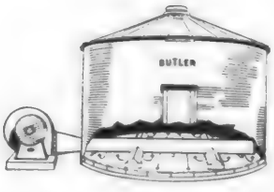
PAR

PROJECT ADEQUATE ROADS: Help end the national traffic muddle—and help get farm products to market at lower cost. Speak up for more and better roads.

Store and condition 1,000 to 17,600 bushels of grain with only one system! You can use the new Butler crop conditioner in single or multiple Butler bin installations.

HERE'S HOW

new BUTLER Crop Conditioner protects your grain



All your grain is protected! New Butler crop conditioner moves a steady, accurately-controlled volume of air through scientifically designed ducts. It lowers grain temperature for safe storage in a matter of hours!

The new Butler crop conditioner gives you a complete grain conditioning system with ducts, fan and motor assembly for 1,000, 1,330 and 2,200-bushel Butler steel grain bins. It promotes the natural conditioning of your stored grain by circulating a controlled volume of air through it for quick cooling.

This prevents heating, protects you against losses due to spoilage and insect activity. You can upgrade grain with 18 to 20% moisture for higher market prices, better feed, safer seed! And you can do it at a cost of only a few cents per bushel.

Consider all the advantages of the new Butler crop conditioning system . . . add the benefits of weather-tight, bird and rodent-proof storage Butler bins give you. You'll see why it will pay you to store and condition your crops in Butler grain bins equipped with the new Butler crop conditioner!

Send coupon NOW for free literature and the name of your nearest Butler dealer. Learn how Butler bins and the new Butler crop conditioner can solve your grain storage problems and help you make new profits!

For prompt reply, address office nearest you:

BUTLER MANUFACTURING COMPANY
7378 East 13th Street, Kansas City 26, Missouri
978A Sixth Avenue, S.E., Minneapolis 14, Minn.
921 Avenue W, Ensley, Birmingham 8, Alabama
Dept. 78A, Richmond, California

Please send the name of the nearest Butler dealer, also free folders on Butler bins and the new Butler crop conditioner.

Name .....

P. O. .....

R. F. D. State .....

BUTLER STEEL PRODUCTS

Oil Equipment
Steel Buildings
Farm Equipment
Cleaners Equipment
Special Products

Factories at Kansas City, Mo.
Galesburg, Ill. • Richmond, Calif.
Birmingham, Ala.
Minneapolis, Minn.

Over The Back Fence

Pro-and Anti-cat People feel pretty strongly about cats, one way or the other. The felinophobes have banded together to do away with all cats and the felinophiles are rabid tub-thumpers for cats, publishing a magazine and getting out propaganda. One of the most vocative of the cat haters is FRIENDS OF THE BIRDS, INC., Miss Gertrude Charny is president of this organization, which has its headquarters at 2502 Chapala St., Santa Barbara, Calif. Miss Charny says that anti-cat bills are always being brought up before legislators, but just as often fail to pass because cat lovers sabotage them, sometime even before they come up. She says in a recent letter: "What is the mystery of the failure of any cat Bill? Cat owners have a trump card. I made a number of investigations and found it is a practice of cat enthusiasts to send as many as 50 faked letters to a legislator. Even advance threatening letters "Don't pass any Cat Bill" are waiting on the desks of legislators. Also I have learned that letters favoring a cat Bill do not always reach the Legislators." She says that cat lovers always bring up "Balance of Nature" and "God's Will" to defend the cat. This, according to Miss Charny, is pure bunk. "They do not fit the cat," she says, "any more than they would fit man-made forest fires, for the cat is an imported animal."

Cranberries, a Can per Man If your family didn't eat a can of cranberries per head last year you might as well make up your mind to do it in 1954 because the Cranberry Association of America is after you. The Association, which markets most of the cranberries of the country under the Ocean Spray label, says that every man, woman and child in Chicago, San Francisco, Boston, and Washington each ate a can per head last year and what's good for those people is good for everybody. That would mean 160,000,000 cans of Ocean Spray sauce a year, and a good thing that would be for the grower, too.

Long, Lean, and Dry Farms come in all sizes and shapes, but one of the oddest was discovered by one of our editors who was doing research on the dry-farm story. A 100 acre dry-farm is an oddity in itself among the big spreads, but this one, leased by Mrs. Loa Lagenbacker, Nephi, Utah, is 85 feet wide and 11¾ miles long. The railroad had been forced to maintain a 100 foot area on each side of the tracks to prevent fires from their steam locomotives spreading into the crop land. When the U. P. switched to Deisels the late Mr. Lagenbacker saw his chance to become a farmer. He leased the long stretch of good wheat land. A custom farmer does the work.

Take a close look at this

new BUTLER farm building

. . . "most adaptable building I've used"

Says Foster Adams, R. R. #1, Lenexa, Kansas

"We can take any machine on the farm through those 20' Butler doors," says Mr. Adams. "The new building is just the thing for machine storage. Right for livestock, too! It's weather-tight, easy to partition, simple to clean. It's the most adaptable building I've ever used!"

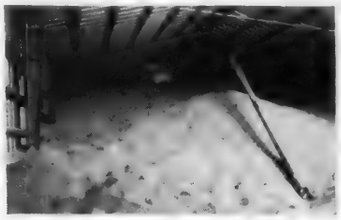
See how you can use it for machine or feed storage . . . shop . . . livestock housing—or a combination of these uses. You can adapt the clear-span interior of this new 36' wide, 12' high sidewall Butler farm building to match your needs. You can get any length buildings in multiples of 20'.

Step inside and look at Butler's rigid framework. It gives you post-free floor space with room to turn big implements around, and park them where you like. It also furnishes structural strength for hoists to make repair work easier. Butler translucent Lite* Panls in the roof assure good natural lighting, too.

Look how quick and easy it is to move big machines in and out of this new Butler farm building. Wide, 20' doors—located in the sides to fit your convenience—give you clearance for self-propelled combines, 4-row implements and other large equipment.

Hear how this new Butler building is priced to make your farm building dollars go farther than ever. The initial cost is low. Quick erection cuts construction costs . . . gives you added savings. Butler's steel framework and long-lived, galvanized steel sheeting—sealed and bolted firmly—insure you year after year of good service with little or no upkeep.

You can store big implements in the new Butler building without having to waste time inching through small doors or taking equipment apart.



You keep grain safe, clean . . . keep storage costs per bushel low, in Butler grain storage buildings with 5,000 to 100,000 bushel capacities.

Your cattle and other stock are safe, comfortable in a Butler building—steel or aluminum. You can arrange pens and feed to save work, speed chores.

BUTLER® STEEL PRODUCTS

See your Butler Dealer before you build

Call your nearest Butler dealer right away! Let him show you a few of the Butler buildings at work in your community. Talk to their owners. You'll see why it will pay you to build with Butler! Send coupon for name of Butler dealer nearest you and free folders by mail.

BUTLER MANUFACTURING COMPANY

Manufacturers of Oil Equipment • Steel Buildings • Farm Equipment • Cleaners Equipment • Special Products

Factories located in Kansas City, Mo. • Galesburg, Ill. • Richmond, Calif. • Birmingham, Ala. • Minneapolis, Minn.

For prompt reply, address office nearest you:

BUTLER MANUFACTURING COMPANY

7378 East 13th Street, Kansas City 26, Missouri
978A Sixth Avenue, S.E., Minneapolis 14, Minnesota
921 Avenue W, Ensley, Birmingham 8, Alabama
Dept. 78A, Richmond, California

Please send me the name of the Butler Dealer nearest me. Also free folders on Butler farm buildings.

Name.....

P. O.....

County..... State .....

THERE'S AN ALL-STEEL
USF UTILITY BUILDING
FOR EVERY FARM PURPOSE

USF IMPLEMENT SHED

EASY TO ERECT—no welding, riveting or cutting.

VARIABLE—26′ or 30′ span widths, length in any multiple of 13′-4″ and choice of 10′ or 12′ clear height.

VERSATILE—*Six* types of interchangeable wall panels adapt design to any farm purpose.

TYPICAL GENERAL PURPOSE BUILDING

WRITE for descriptive bulletin.

USF STEEL

UNITED STEEL FABRICATORS, INC.
220 GASCHE ST., WOOSTER, OHIO
PRODUCTS: Hollow Metal Doors • Prefabricated Metal Buildings • Window Wells • Highway Guard Rail • Bridge Flooring • Corrugated Metal Pipe

DAIRY BARN

Kindness Helps Settle Cows

Kick a cow or give her a good scare and she'll get even by giving less milk. Dairymen have long known this and have soothed their cows to get them to let down. Now, it appears that gentle treatment will also pay off in getting the cow with calf.

The scientists who have been working on this problem, Dr. N. L. VanDemark, Dr. R. L. Hays, and Dr. A. N. Moeller, of the University of Illinois, have shown that the sperm can reach the egg in the cow's ovary in as little as two and a half minutes after insemination. Under its own power, the sperm would take at least 30 minutes to travel this distance. So, the scientists figure, the sperm is helped along its way by the uterine contractions which seem to be triggered by the secretion of oxytocin, the same hormone which causes the cow to let down her milk. These important contractions are slowed to almost a stand-still by the injection of epinephrine, a substance the cow secretes when she is frightened or angry.

SHE'LL get even.

The time taken by the sperm to reach the egg was determined by a series of costly experiments in which 18 cows of various breeds were inseminated—both naturally by a bull and artificially—and then slaughtered at varying intervals. Since slaughter and removal of the reproductive tract took a minimum of 24 minutes, some of the cows were subjected to an operation which exposed the right side of the reproductive tract. Local anesthetics made this operation painless. The cow was then bred and within a minute or two the scientists were able to apply clamps to various portions of the reproductive tract which would prevent the passage of the sperm. By keeping careful track of the time the clamp was applied after insemination they were able to time the speed of sperm movement—if sperm were found beyond the clamp they knew that they must have reached there in the time between insemination and clamping.

Pipelines Save Time

In a recent test, permanent milk pipelines in a stanchion barn were compared with milking parlors, and conventional machine milking. The results show that Grade A milk can be produced by any of these three methods, but that the pipeline system saved the farmer time—up to a half hour per milking with a 24 head herd. It was also found that the pipeline equipment could be cleaned in position just as well as by disassembling it and then cleaning it. The cleaning operation was done in four steps: (1) the pipe was rinsed with clean water at approximately 100 degrees Fahrenheit right after milking. (2) It was then washed by recirculating a hot synthetic alkaline detergent solution for eight minutes. Every fourth milking a synthetic acid rather than an alkaline detergent was used. (3) The pipe was then rinsed for approximately five minutes with a 200 parts per million chlorine solution at 100 degrees Fahrenheit. (4) Immediately before milking, the pipeline was again rinsed with the chlorine solution. The clean-up time with the pipeline was longer than with the other methods, but real time was saved on milking. Milking time averaged 3.03 minutes per cow with the pipeline, 5.03 minutes with the conventional system using two units, and 3.93 minutes per cow with four units in a milking parlor. Since the clean-up time would be the same for a pipeline used with a large herd as with a herd of 24 cows, the pipeline system would have an even greater advantage in a bigger herd.

If You Want a Low Tractor

Step Into This CASE LOW SEATER

One-Minute Hook-Up Sitting Down. Change mounted implements without leaving driver's seat. Drawbar stays in place, ready for pull-type implements, machines, and wagons.

Simple Hydraulic Control. One ram, one lever for Eagle Hitch operates all rear-mounted implements—many front-mounted.

NEW•••PIVOT-ACTION PLOW

Beams and bottoms pull from precisely the right pivot point . . . in the plow itself . . . cutting full width and correct depth on curves and straight ahead. Plow breaks away when it hits obstacle, recouples by backing up tractor.

NEW•••PIVOT-ACTION DISK

Cuts just as effectively on curves as on straightaway. Ideal for contour tillage and work in tight places. Easy hook-up to Eagle Hitch . . . handy transport . . . plus flexibility for following irregular ground.

Built low for comfort and convenience, this new low-cost, 2-plow Eagle Hitch Tractor lets you take one easy step to reach the low platform and settle in the low "Bodyguard"® seat with torsional rubber springs. Yet, you have full under-clearance with front-mounted cultivators or with wide choice of Eagle Hitch rear-mounted implements, including exclusive Breakaway Pivot-Action Plow, Pivot-Action Disk Harrow, tool-bar tillers, planters, mowers, utility carrier . . . all with Constant Hydraulic Control . . . plus many other implements made for Case Tractors such as loaders, scoops, blades, and diggers. Adjustable front and rear tread permits practically any spacing of standard and narrow-row crops. Available also with dual front wheels. High-torque, heavy-duty engine gives you lugging ability for hard pulls. Any way you look at it, this tractor gives you more for your money. See your Case dealer about a demonstration.

CASE

GET THE FULL STORY

For illustrated catalogs or folders . . . plus "WHAT IS EAGLE HITCH FARMING" booklet . . . mark here or write in margin any items that interest you. Send to J. I. Case Co., Dept. M-903, Racine, Wis.

Eagle Hitch Tractors—

- ☐ New Low-Seater
- ☐ New 2-3 plow "SC"
- ☐ Full 3-plow "DC"
- ☐ Eagle Hitch Implements
- ☐ New Case Diesel 3-plow Tractor
- ☐ Model "LA" 4-5 plow Tractor

Name_____

Postoffice_____

RFD_____ State_____

"I don't know where you'd get better fence than American"

says Hersil E. Scott, Route 6, Huntington, Indiana

● Mr. Hersil E. Scott owns a 175-acre farm near Huntington, Indiana, that boasts of fine buildings, modern machines—including an airplane!—and sturdy American Fence to carry out a good crop rotation and pasture program.

"I've used American Fence ever since I've been farming." says Scott. "Don't know how you could beat it. The American Fence I put up over 19 years ago is still tight and even between posts."

Mr. Scott can back up the claim that his American Fence is as "strong as a bull" too. As Mr. Scott tells it, "A bull recently got tangled in the fence and all that had to be done to the fence was spring it back in place. It's as good as new . . . you'd never know anything had happened to it. I like that built-in (Tension) Curve which allows for such shock." There are 560 rods of sturdy American Fence on the Scott farm, with an American Steel Post to every rod. The entire fence is topped by two strands of American Barbed Wire.

6 favorite features of American Fence

1. Heavily Galvanized Wires
2. Hinged Joint
3. Tension Curve
4. Full Gauge Wires
5. Correct Spacing of Wires
6. Full Length and Height

You, too, will buy the best when you make it "American" the next time you order fence materials.

AMERICAN STEEL & WIRE DIVISION, UNITED STATES STEEL CORPORATION, GENERAL OFFICES: CLEVELAND, OHIO
COLUMBIA-GENEVA STEEL DIVISION, SAN FRANCISCO • TENNESSEE COAL & IRON DIVISION, FAIRFIELD, ALA.
UNITED STATES STEEL EXPORT COMPANY, NEW YORK

FOR A BETTER FENCE, USE THESE FAMOUS AMERICAN PRODUCTS WITH YOUR AMERICAN FENCE:

U·S·S AMERICAN STEEL POSTS . . . they're big and husky, with slit wing anchors that root the posts into the ground. No post holes needed.

U·S·S AMERICAN GALVANIZED BARBED WIRE . . . has sharp, evenly-spaced barbs. Comes in five styles, with 2- and 4-point barbs.

U·S·S AMERICAN FENCE

There's more American Fence in use than any other brand!

UNITED STATES STEEL

FARM BOOKS

Dual-Purpose Cattle, *by Claude H. Hinman, American Milking Shorthorn Society, Springfield, Mo., $5.00.*

Farmers who are finding modern dairying much too specialized for their tastes but who need efficient roughage converters in their setup are looking with increasing interest to dual purpose cattle. To such, this book may prove a valuable guide.

In spite of the fact that it was written by a Shorthorn breeder and published by the Milking Shorthorn Society, the book gives a well balanced treatment of all three major breeds of milk and meat producing stock, the Milking Shorthorn, the Red Poll and the Devon. As a matter of fact, Mr. Hinman seems to have gone out of his way to avoid the accusation of having given the Shorthorns the best of it.

He starts out, logically enough, with a battery of arguments in favor of dual-purpose stock and their place on most general purpose farms. Then he follows up with a complete presentation of most of the things one might need to know to handle a herd of these double barreled cattle successfully. Breeding, feeding, diseases, beef production, milk production, the purebred business, sales promotion and all the more important details are covered in this compact volume.

Law and the Farmer, *by Jacob H. Beuscher. Springer Publishing Company, Inc., New York, $4.95.*

Not a book that pretends to solve all the farmer's legal problems by simple reference, this is, however, a neatly done introduction to our American system of law and it gives the layman a good appreciation of how the courts function, and the value of good legal advice.

As Mr. Beuscher is careful to explain,

(*Continued on page* 144)

THE FARM'S PICTURES

Cover by Joern Gerdts

5—Standard Oil Co. (N.J.). 10—Kazik Pazovski. 12—Fred Knoop. 14—U.S.D.A. 18—Joe Munroe. 32—Fred Knoop. 34 and 35—Joe Munroe. 36 and 37—R. J. McGinnis. 38—Joe Munroe. 39—Kazik Pazovski. 40 and 41—Joe Munroe. 42 through 45—Grant Cannon. 46—Carl Brooke. 47—Drawing, Robert C. Smith. 48—Imperial Farm News. 49—Joe Munroe. 50—Kazik Pazovski; Joe Munroe; Kazik Pazovski. 51—Joe Munroe. 52 through 54—Fred Knoop. 55—Chester Nichols. 56 through 59—Marcel Coen. 60 and 61—Kazik Pazovski. 63—Joe Munroe. 65—Kazik Pazovski; Joe Munroe. 66—Joe Munroe; Drawing, Robert C. Smith. 67—Joe Munroe. 68—La Race Bovine Charollaise, Nevers, France. 69—Gene Smith Studio; William Jeffery; Gene Smith Studio. 70—U.S.D.A. 71—Chauncie Wilson, Ohio State University; R. S. Beese, Pennsylvania State College. 72 and 73—Kazik Pazovski. 74 and 75—Drawings, Margaret Wenstrup. 75—Kazik Pazovski. 76—Kazik Pazovski; Courtesy Northern Pacific Railway. 77—Courtesy Northern Pacific Railway. 78 and 79—Fred Knoop.

Four Wonderful New ROTOTILLERS* for 1954!

POWER GARDENING! POWER LAWN MOWING!
POWER SCYTHING! POWER SNOWPLOWING!
POWER COMPOSTING! POWER WOODCUTTING!
SO Easy To Handle!
Lightning Change From Job to Job!

Goodbye Plow, Disc and Harrow!

ROTOTILLER'S unbreakable, tangle-resistant "Chopper Digger" blades do the whole job of preparing seed beds in ONE easy operation. Ideal for cultivating and power composting—Summer and Fall. They'll dig as much as 8" deep easily!

Makes Lawn Mowing a Cinch!

New low-cost Lightning-Change LAWN MOWER operates with amazing speed, as fast as a man can comfortably walk. Cuts velvet-smooth swath, 25" wide. Leaves no untrimmed edges! Swivels to follow ground contours!

Murders Weeds, Tall Grass, Brush!

New 19" ROTARY MOWER Attachment becomes part of the Rototiller itself. This added weight, together with full horsepower, really "murders" weeds, tall grass, brush—even cornstalks. Leaves nothing to rake.

Improves Your Soil ALL SEASON LONG!

With the brand-new "Chopper Digger" blades you can compost cover and green manure crops—even garbage—right in your garden itself. Improve your soil all Summer long—all through the Fall!

Does the Work of 8 Men with Shovels!

You can clear walks and driveways in a jiffy with this Lightning-Change SNOW PLOW attachment. Wonderful for light bulldozing and grading in Summer. Costs less than $30!

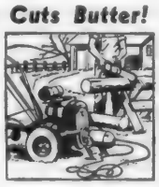
Makes Beautiful New Lawns!

Early Fall is the best time for LAWN-MAKING — and Rototiller is the expert's way to do it! Every inch of lawn at the New York World's Fair was made with Rototiller equipment.

Turns Leaves into Rich Plant Food!

Rototiller's "Chopper Diggers" make the leaves of just one big tree worth $5 to you. All their mineral and organic richness is chewed right into your soil. You'll never have to burn another leaf!

Cuts Wood Like a Knife Cuts Butter!



New Rotoelectric Chain Saw weighs only 14 lbs. Easily cuts trees up to 20" thick! Perfect for pruning. Cuts whole month's fire wood in half a day. Operates from any 1000 watt, 110 volt A.C. source or from ROTOTILLER'S own generator.

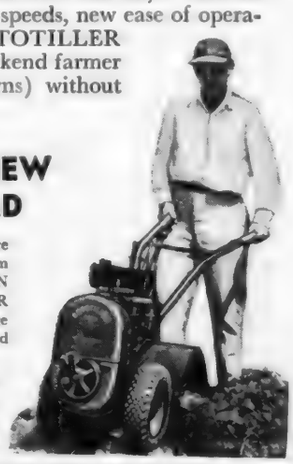
BE sure to look at the new ROTOTILLER Models for 1954, if you are thinking about getting a new garden tractor. These amazing new models can do scores of different jobs around a farm or country place—do them quickly; do them perfectly! ROTOTILLER's exclusive Lightning-Change Attachments convert to lawn mowers, wood saws, water pumps, etc. in seconds! (See job performance listing in the column at the left.)

Models range from the big heavy-duty Model 3, so much in demand by commercial fruit and vegetable growers, down to the entirely new Model E, a lightweight (only 14 lbs.) electric model with a 6-inch cut that your wife can use to cut weeding and cultivating time (and save backaches, too!) in her flower garden.

1954 PRICES BEGIN AS LOW AS $89.00 (FOR MODEL E)

LIKE HIRING AN EXPERT HANDY MAN FOR NO MORE THAN $1 A DAY!

While the first cost is usually lower than you'd expect, the day-after-day low cost of operation is the real surprise! Even the big Model 3 can do a full day's work on about a dollar's worth of gasoline. Add the new higher speeds, new ease of operation, new finger-tip steering, and it is easy to see why ROTOTILLER today is the leader among all garden tractors. Even a weekend farmer can easily take care of a 2-acre garden plot (plus lawns) without extra help.



FREE BOOK SHOWS WHY THE NEW ROTOTILLERS ARE MILES AHEAD

Scores of photographs show how these wonderful new ROTOTILLERS are miles ahead of any other garden tractor for country home and modern farm use! SEE how a ROTOTILLER does the work of more than a DOZEN different Lawn and Garden Machines. SEE why MOTHER and DAUGHTER love the new ROTOTILLER, too . . . how it handles easy as a baby carriage . . . makes it downright fun for any member of the family to keep lawn and garden pretty as a picture.

READ the whole revealing story in our new 68-page FREE book, "How to Do Wonders With ROTOTILLER," by Ed Robinson, author of the "Have-More" Plan. Packed with scores of practical new ideas for easier and happier country living. No obligation whatsoever. So mail the coupon NOW to: ROTOTILLER, Inc., Dept. 91, Troy, New York.

DOES A FULL DAY'S WORK IN JUST ONE HOUR!

ROTOTILLER
Reg. U. S. Pat. Off.
*Reg. U. S. Pat. Off.

Now — More Than $50,000,000 Worth of Rototillers In Use in the U. S. A.

ROTOTILLER, Inc., Dept. 91
Troy, New York

Please send me FREE, by return mail, a copy of your big new 68-page illustrated book, "How to Do Wonders With Rototiller," by Ed. Robinson, author of the famous "Have-More" Plan.

Name .....
(Please Print)
Address .....
City ..... County .....
State .....

HERE IS THE TRULY

ONE SHOT

PENICILLIN TREATMENT

for animal diseases responding to penicillin!

BICILLIN® FORTIFIED

DIBENZYLETHYLENEDIAMINE DIPENICILLIN G • PROCAINE PENICILLIN G

- ***Provides fast action plus long action.***
- ***Gives immediate high blood levels with continuous protection for up to 6 days.***

- Think what this means to you in treatment of pneumonia, shipping fever, foot rot, navel ill and dozens of other diseases.
- Think what this means in time saved in handling animals!
- Think what this means in comparison to old-fashioned penicillins. In these, blood levels lasted only a few hours and required repeated injections.
- Think what this means in increased income!

This wonderful boon to every farmer raising stock of any kind is the result of intensive research and study in the Wyeth laboratories. It is the treatment farmers everywhere have wanted. Now it is yours to use—to save time and money—to add to the profit side of your farm operation.

AVAILABLE FROM YOUR DRUG STORE OR OTHER ANIMAL HEALTH PRODUCTS SUPPLIER

Supplied:

Bicillin Fortified 300

50 cc. vials of 150,000 units Bicillin and 150,000 units procaine penicillin per cc. The same formula is also supplied in a 10 cc. vial.

Bicillin Fortified 600

Boxes of 10 and 50 Tubex® cartridges, each containing 300,000 units Bicillin and 300,000 units procaine penicillin with individual needles attached.

Wyeth

PHILADELPHIA 2, PA.

Mail Coupon Below

FOR Bigger AND Better Crops

TEST YOUR SOIL

Want to Get up to 227 Bu. Corn per Acre
125 Bu. Wheat • 5 Tons Hay • 30 Tons Tomatoes
906 Bu. Potatoes • Up to 300% Increase in Milk

Make every $1 you spend for fertilizer pay you up to $15 or more, in extra yield. A farmer in Ohio boosted production on corn 300%, oats 500%, wheat 100%, hay 300% with his Sudbury Soil Test Kit. So can you!

You not only make more money, you save money! Every season you'll save up to $15 an acre on fertilizer. Guessing wastes both time and money—like the farmer in Illinois who "guessed" he needed to spend $500 for lime but soil tests showed he didn't. That $500 paid for all the phosphate he found was really needed on 65 acres.

Soil Can Make —Or Break You!

Without the right fertilizer in the soil, even the best farming cannot prevent stunted, deformed corn ears and weak stalks that lodge. Leading Agricultural Experiment Stations made these tests to show the benefit of using the right fertilizer.

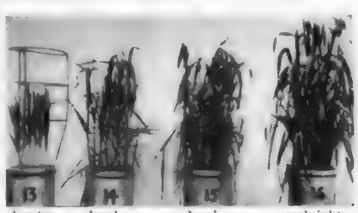
Both joints and roots had rotted in the weak stalk and nubbin from a field not properly fed, shown by cutting down the center. This caused poor yield and difficult harvesting. It also robbed the soil of fertility a bumper crop would have returned.

The tremendous root system, sound stalk and perfect ear above was from a comparison plot where correct kinds and amounts of fertilizer were used.

Astounding Proof!

The right fertilizer, guided by soil tests, produced the bumper corn in bin at right.

It's also the secret of vigorous, healthy oats as demonstrated in pot 16. The wrong fertilizer formula will cut your profits on every crop.



low in nitrogen | low in phosphate | low in potash | used right fertilizer

These benefits on corn and oats are just as true for every crop on your farm. Don't miss the bigger yields you can have by owning a Sudbury Soil Test Kit!

Make More Money in 1954!

You can ***increase your income above your best year*** by getting more bushels or tons per acre. All over the country hundreds of thousands of farmers are doing this by soil testing. You'll produce record yields, and actually build up your soil for years to come instead of draining its vitality. ***In just two weeks your Sudbury Soil Test Kit will pay for itself many times over!***

The Under Secretary of Agriculture says: "To meet the cost-price squeeze, farmers must get higher yields per acre and greater production per animal. That means spending wisely to maintain and expand production." Crop experts say the average yield of American farms can easily be doubled within a few years. Soil Testing is the only answer to produce bumper crops in every field.

No Knowledge of Chemistry Needed

EASY AS READING A THERMOMETER

So simple anyone can use it. Even your first tests will be accurate and reliable. No waiting for reports—you get the correct answer right away. Ready to use anytime, anywhere. Takes only 10 minutes, costs less than 10c a test.

SUDBURY Soil Test Kit

This is our famous **Farmers deLuxe Kit.** Complete with everything for hundreds of tests. More valuable than all your stock and tools! Shows right amounts of nitrogen, phosphate and potash for each field. Also whether lime is needed (pH) and how much. Lifetime welded steel chest with carrying handle. Weighs only 12½ lbs. Easy instructions show needs of 225 different crops.

Big Value, only $29.95.

FREE TRIAL

SEND NO MONEY

Order today and we'll mail C.O.D. plus postage. Or send check and we'll pay postage, saving you from $1.91 to $3.55 in postal charges.

OUR DARING Guarantee

YOU TAKE NO RISK

We are so certain you'll get bigger and better crops we'll refund the full purchase price anytime within a year if you don't.

If desired, use our Easy Payment Plan (see coupon).

FREE BOOK

If you send cash, we'll also include the farm management book "Our Land and Its Care."

SUDBURY LABORATORY
Box 76, South Sudbury, Mass.

Send me the Farmers deLuxe Sudbury Soil Test Kit at the special low price marked below:

☐ Enclosed is $29.95; send postpaid; include free book, "Our Land and Its Care."

☐ Send C.O.D. only $29.95 plus postage.

Name .....

R.D. or St. .....

P.O. ..... *Zone* ..... *State* .....

☐ Send on Easy-Payment Plan—I'll pay mailman $4.95 plus postage, then 4 monthly payments of $6.75 each.

400,000 Users Can't Be Wrong!

S.G.H. of Michigan "guessed" his potato field had enough potash but needed nitrogen. Tests showed he was wrong. He saved the nitrogen, bought potash and doubled his yield.

G.H. of Ohio "Have made many tests; like its simplicity and accuracy. Worth 1000 times its cost on my 320 acres; found them low in phosphate."

A.D. of Indiana nearly doubled his corn yields as a result of testing his soil. He also gets 30% more wheat and soybeans per acre.

W.L.D. of Pennsylvania saved $400 an acre on fertilizer. "The Kit has paid for itself over and over again." That's real satisfaction!

R.S.G. of Indiana tested his soil and discovered potash was badly needed. He has increased his corn yield 20%! He also reduced fertilizer costs by using only what his Sudbury Soil Tests showed was needed.

A.F.B. of Iowa increased his bean yield 50% by correcting phosphate and potash deficiencies his Sudbury Soil Test Kit revealed.

Hardware, Seed, Grain and Farm Supply Stores: Serve Your Customers by Carrying this Essential Aid to Better Farming.

SUDBURY LABORATORY, Box 76, South Sudbury, Mass.

World's largest makers of Soil Test Kits

STEAKS from CORNCOBS

You can now produce quality beef at low cost from corncobs, stover and silages that may pass through cattle undigested and here's how...

Just feed these cheap roughages in combination with manufactured feeds formulated with ARCADIAN* Feed Urea.

The breeding herd and young stock will get more out of dry pasture grasses and protein-poor hay when properly supplemented.

Range concentrates, cattle cubes and other prepared feeds made with ARCADIAN Feed Urea nourish the bacteria in the rumen, causing them to multiply in great numbers and rapidly digest roughages. The urea nitrogen is built into bacterial protein which cattle convert into valuable meat.

You make money two ways when you buy feeds containing ARCADIAN Feed Urea. You get high-quality manufactured feeds at low cost and you get real feed value from low-cost roughages. See your feed dealer today!

*Trade-Mark

ARCADIAN* FEED UREA

Nitrogen Division
ALLIED CHEMICAL & DYE CORPORATION
SOUTH POINT, OHIO

NITROGEN DIVISION ALLIED CHEMICAL

THE new NEW IDEA NO. 15 PTO SPREADER. Swivel bearing on an adjustable support is centered on PTO drive shaft. Foot support folds into hitch. Telescoping drive shaft gives flexibility on rough ground and sharp turns. Reinforced distributor paddles can be removed separately.

If your spreading job is big...

you'll like this New Idea PTO

Every year more farms grow up to be big business. Your jobs get bigger — including that profit-building job of spreading manure.

The NEW IDEA family of spreaders has grown right along with your farm business. The No. 15 spreader is the newest and biggest member. You'll have no trouble recognizing it as NEW IDEA. It has all the features that have made NEW IDEA spreaders outstanding. But it's bigger (120 bushels); stronger — to give long life under heavier strains; PTO-powered — to handle bigger loads faster. It has four different rates of feed for each forward gear of your tractor. This gives you close control at all times over the amount you spread. It's a rough, tough spreader with plenty of strength and beater-power to handle big spreading jobs.

You may still feel that one of the three smaller NEW IDEA spreaders suits you better. Your community NEW IDEA dealer will tell you it's all in the family. But if you have a lot of manure to spread ... often ... he'll show you the advantages of owning a No. 15 Spreader.

FOUR RATES OF FEED for each forward tractor speed. Sturdy, corrosion-resistant wooden box with steel flares takes heavy loads from hydraulic loaders.

NEW IDEA FARM EQUIPMENT COMPANY AVCO Distributing Corporation

DEPT. 1001, COLDWATER, OHIO

MAIL THIS COUPON TODAY FOR FREE FOLDERS

Send folders as checked

- ☐ No. 15 PTO Spreader (120 bu.)
- ☐ No. 12-A Spreader (90 bu.)
- ☐ No. 14-A Spreader (65 bu.)
- ☐ No. 10-A 4-wheel Spreader (75 bu.)
- ☐ Stalk Shredder
- ☐ Hydraulic Loaders
- ☐ Elevator
- ☐ Need for schoolwork
- ☐ I farm____acres

NAME_____

ADDRESS_____

COUNTY_____ STATE_____

Boost her vigor and better her production!

AUREOMYCIN*

Lederle

Chlortetracycline Hydrochloride

You want your layers and breeders to *keep on producing* good market and hatching eggs. So, make sure that they *keep on consuming feed* for peak utilization!

It's feed — the *right* kind of feed and continuous consumption of it — that gives hens the vigor and vitality to maintain peak egg production and high hatchability.

Whenever there are signs of trouble — a drop in feed intake or a drop in egg production, suggestive of chronic respiratory disease or blue comb (non-specific enteritis); or when hens are under stress from moving or change in management — give your hens the *extra* protection of well-balanced, "high level" AUREOMYCIN feeds!

AUREOMYCIN is a fine "appetizer" and a strong supporter of health. It is the antibiotic that is *most active against most kinds of disease organisms.* AUREOMYCIN will often correct a situation and restore hens to the normal appetites so necessary for vigor, vitality and egg production.

Ask your feed dealer or supplier for well-balanced poultry feeds containing "high levels" of AUREOMYCIN. Feed them to your layers. Boost *their* vigor . . . and better *your* profits!

*Trade-mark

Animal Feed Sales

LEDERLE LABORATORIES DIVISION

AMERICAN Cyanamid COMPANY

30 Rockefeller Plaza New York 20, N. Y.

How to Own a Bigger Farm

without buying more land

YOU don't have to buy more land to make your farm a bigger farm. Total acreage is only one factor in determining the size of a farm. A farm is as big as its power to produce.

By increasing your soil's power to produce, V-C Fertilizers make your farm a bigger and better farm *in yields and profits.*

Another man may own two to three times as many acres as you own. But, if his acres are poorly-fertilized scrub acres and your acres are good land, well-fertilized with V-C Fertilizers, your farm is as big as his *in yields* and your farm is a bigger farm *in profits.*

His costs of production are much greater than yours, because he has to prepare, plant, cultivate and harvest much more land than you do to get the same yields. V-C Fertilizers add extra yields of better quality crops to your farm without the work, worry and expense of extra land.

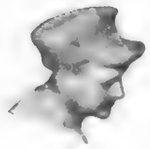
It's easy to own a bigger and better farm without buying more land. Just make sure you use enough V-C Fertilizers to produce maximum yields of high-quality crops. V-C Fertilizers reduce your costs of production and increase your profits. V-C Fertilizers are your best investment. Use more in 1954. See your V-C Agent today!

VC FERTILIZERS®

Black Leaf®

„ Use BLACK LEAF® pest control products

When you buy V-C Fertilizers to grow better crops place your order for Black Leaf sprays or dusts to protect your crops from insects and other pests. V-C Fertilizers and Black Leaf pest control products work together to produce and protect big yields.



"My Quonset works for me four ways..."

"It fills my needs for a **machinery storage** building, **workshop, garage** and surplus **grain storage,"** says Endren P. Johnson. Mr. Johnson farms 240 acres near Huxley, Iowa, and specializes in growing hybrid seed corn.

There are many things he likes about his Quonset, but Mr. Johnson says, "The clear-span interior with those big doors and the all-steel non-combustible construction are what really convinced me." And he's glad he bought the inner-wall lining for 24 feet in one end—he stored 2000 bushels of soybeans for 90 days and made a profit of 23 cents a bushel on storage because he had a safe place to put them.

Mr. Johnson's machinery lasts longer, runs better and has higher trade-in value because it is sheltered the year around in his spacious Quonset. And he says it's ready to go when he needs it due to better and easier maintenance in the shop which is located in one end of the Quonset.

Quonsets are available for any farm use—they are engineered to help you cut costs, save time and make profits. And they can be easily financed on the Quonset Purchase Plan. Your dealer will be glad to show you how.

Clear-span Quonset interior provides ample and efficient space for storage and handling of modern farm machinery for Endren P. Johnson, Huxley, Iowa.

Quonset drying and storing permits earlier, cleaner harvest, better market control for W. R. Mitchell, Grundy Center, Iowa.

Good looking, durable and easy to maintain. That's the Quonset all-purpose farm production tool.

Beef barn owned by W. A. Allely, of Montezuma, Iowa, is a time-saving, labor-saving Quonset 40 x 60.

Farm for the Future...with Quonset®

YOU NAIL TO STRAN-STEEL FRAMING

STRAN-STEEL AND QUONSET REG. U. S. PAT. OFF.

GREAT LAKES STEEL CORP., Stran-Steel Div.,
Ecorse, Detroit 29, Mich.

Please send me the latest literature on Quonsets for farm service buildings and the name and address of my nearest Quonset dealer.

Name_____

Address_____

City or County_____ State_____

GREAT LAKES STEEL CORPORATION

Stran-Steel Division — Ecorse, Detroit 29, Mich.

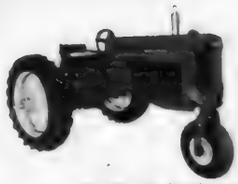
28

PRODUCER OF NAX HIGH-TENSILE STEEL

NATIONAL STEEL CORPORATION

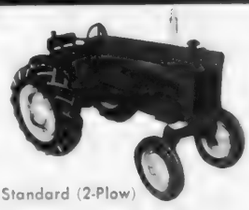
Only a JOHN DEERE TRACTOR* Will Meet ALL Your Row-Crop Needs MOST ECONOMICALLY

"40" (2-Plow)

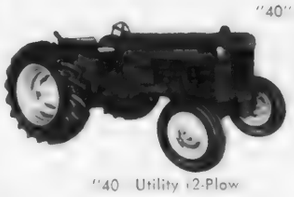


"40" with Single Front Wheel

"40" with Wide, Adjustable Front Axle

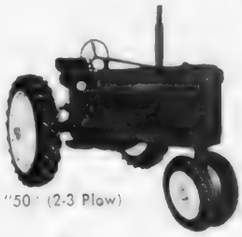


40" Standard (2-Plow)



"40" Utility (2-Plow

*Not 1, but 14 Great General-Purpose Models... each with 3-Point Hitch and a Full Line of Pickup Tools



"50" (2-3 Plow)

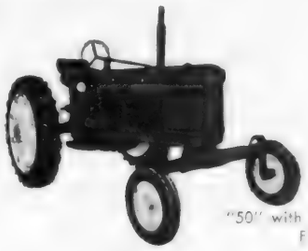
"50" with Single Front Wheel

THIS year **find out for yourself** why so many thousands of America's row-crop farmers have chosen John Deere Tractors.

In today's complete, modern line of general-purpose tractors, John Deere is making available to farmers precisely the kind of tractors they have been asking for . . . tractors with the wide flexibility and wide adaptability so necessary for today's farming . . . tractors with the correct forward speeds for every need . . . tractors that are **built right** so they can be depended upon to stay on the job . . . tractors that are cheaper to operate and easier to maintain . . . tractors equipped with the outstanding hydraulic control on the market today.

And remember, there's a complete line of matching John Deere 3-point pickup equipment to choose from . . . equipment that is as modern and dependable as the tractors themselves.

Your John Deere dealer invites you to look over today's great line of quality-built tractors for 1954 . . . not just one model to meet **all** requirements, but **the** right model to meet your own particular requirements, small acreage or large. Write for free literature on the tractors on which you'd like to have further information.



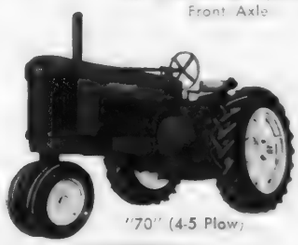
"50" with Wide, Adjustable Front Axle

JOHN DEERE
MOLINE, ILLINOIS

70 with Wide, Adjustable Front Axle

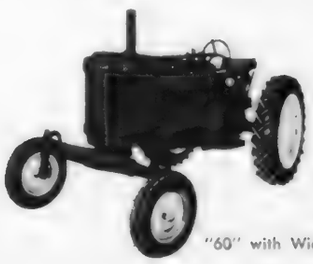
"70" with Single Front Wheel

"60" (3-4 Plow)



"70" (4-5 Plow)

"60" with Single Front Wheel



"60" with Wide, Adjustable Front Axle

JOHN DEERE QUALITY FARM EQUIPMENT

Ask Your JOHN DEERE DEALER for a FREE DEMONSTRATION

You will be interested in these results of on-farm tests with

HYBRO-TITE*

Nature's own 20-mineral SOIL CONDITIONER

Many soils responded with better yields—grass, grain, corn, vegetables, fruit

Last spring we offered quantities of Hybro-Tite for large-scale tests of this new natural rock soil conditioner.

At the time we frankly made no claim for miracles. We said limited tests had indicated Hybro-Tite was an economical soil conditioner for large acreages...and on many soils could be highly profitable.

By more widespread tests we sought to prove further the value of Hybro-Tite. Now the reports from these tests are coming in.

User after user, from many states—on many soils—are writing enthusiastic letters.

They tell how Hybro-Tite has helped step up yields—grow bigger and better crops! How it has helped increase grazing ability of pasture-lands! How it has helped bring worn-out or problem soils to profitable production!

You will be interested in these reports. Here are a few of them. Read them. They may point the way to bigger profits on your farm...

CHAMPION GROWS BEST CORN EVER—"We applied two carloads of your Hybro-Tite during the past Spring... At the present, we think we have the finest corn prospect we have ever had; and, we have had the highest official yield record in Indiana for the past 13 years—average 1940 to 1952—138 bushels per acre. We are hoping this year for a 200 bushel per acre yield on our 5-acre official plot."—T. W. Hilligoss, Shamrock Seed Farms, McCordsville, Indiana.

BEST ALFALFA CROP—"Our pastures are the best that they have ever been and the alfalfa crop was one of the best we have ever had. I am firmly convinced that Hybro-Tite is well worth the cost of purchase and application."—Rev. Victor B. Hann, Supt., Methodist Home for Children, Mechanicsburg, Pennsylvania.

BETTER CORN, SERICEA, GRASS—"I applied one ton of Hybro-Tite and one-half ton colloidal phosphate per acre... The (corn) yield is considerably above the average of former years, and the ears are heavy and full grained... Some of the pecan trees are so heavily loaded with nuts that many of the high limbs are broken under their weight... I have had 35 cows on 15 acres of sericea and 7 acres of bahia grass all summer; yet, the sericea is knee-deep and the bahia grass has a splendid top growth. This year is the first time our sericea has failed to show signs of nutritional deficiencies in August."—Mrs. A. A. Fitzgerald, Summerdale, Alabama.

FREE BOOKLET!

Write for facts today!

Get details on low-cost, easy-to-use Hybro-Tite. Send for free booklet, "Nature's Own 20-Mineral Soil Conditioner"... plus reports of outstanding successes from many users. Write card or letter to Charles L. Davidson, President, today!

Hybro-Tite is easy to spread—like lime. Applied during winter—when you have time and machinery available—Hybro-Tite is ready to benefit your crop next spring. Hybro-Tite feeds slowly, provides hold-over values for your soil.

BARLEY JUMPED FROM 20 TO 50 BUSHELS—"We would like for you to know about our success with Hybro-Tite... This year there is no corn in the counties around here that will surpass ours—and it was planted very thick. Our barley jumped from 20 bushels to the acre to 50 bushels of well-filled grains. As for our clovers, we can't ask for any better. We have never had so much fun in our lives as we have had trying Hybro-Tite on different vegetables in the garden."—Mr. & Mrs. Harold Smith, Waynesville, Ohio.

MORE GRAZING—80 BUSHEL OATS—"The car of HYBRO-TITE we bought last year was used entirely for test purposes... Our results were excellent.

"PASTURES—Our cows have gotten more grazing on less acreage this year than ever before. Twenty-eight (28) acres planted October 15th to rye grass and oats sustained sixty-two (62) head of cattle from the 15th of December until the 9th of March.

"OATS—After taking the cattle off the above twenty-eight acres, the oats made a superior crop—up to eighty (80) bushels to the acre. Visitors that came to our farm described it as 'wonderful', 'best I have ever seen'."—Isham J. Dorsey, Dorsey's Stock Farm, Opelika, Alabama.

FINEST PASTURES—"Thanks to Hybro-Tite our pastures are the finest I have seen anywhere. We grazed 140 head of cattle all last winter and spring, and cut 1½ tons of hay per acre in May. Next year we want to use several carloads of Hybro-Tite. The Hybro-Tite applied last fall and winter on grassland will probably 'hold' for the next 5 or 6 years." —Governor Herman Talmadge, Atlanta, Georgia.

40-BUSHEL WHEAT—"The wheat that we were threshing when you were here turned out good—40 bushels per acre—better than average, I believe. We applied Hybro-Tite at 1200 lbs. per acre plus phosphate rock at 1000 lbs. per acre. The grass stand looks good on this field and I think we will have an extra good crop of hay next year."—Clifford Snyder, Sharon, Pennsylvania.

TRY THIS LOW-COST SOIL CONDITIONER *on your farm!*

Hybro-Tite is one soil conditioner you can afford to apply to your entire acreage *now!* It is not a manufactured, synthetic product—but an economical, natural rock soil conditioner.

If analysis of your soil indicates the need for potash and the 19 trace minerals** that Hybro-Tite contains, it could help step up your yields—help you bring problem soils into production—as it has done for many others!

Apply Hybro-Tite now—You apply Hybro-Tite just as lime is applied. A ton per acre is the suggested application rate. On some soils you may wish to spread natural phosphate (raw rock or colloidal) at the same time.

Hybro-Tite may be spread during off-seasons whenever labor and machinery are available. Minerals in Hybro-Tite are released gradually—its "holding power" may last for years. Spread now, Hybro-Tite will be ready to benefit your crops next spring.

See what Hybro-Tite will do for you—Plan now to try Hybro-Tite on your farm...see what it can do to improve your soil...boost yields.

We will supply test quantities of Hybro-Tite in carloads (40 tons) at nominal cost plus freight, to selected growers. This makes the carload price to the grower $400 to $700, depending on the freight rate. In some localities half-carload deliveries (20 tons) can be made in stop-overs.

Write or wire immediately—If you would like to be the first in your community to discover the benefits of Hybro-Tite on your soil...on your crops...then write or wire us at once. Hurry, because the 1954 tests must be allocated to certain areas and crops. But first come will receive first consideration.

*Trademark of Potash Rock Company of America, Inc.

**Potash—plus aluminum, silicon, sodium, titanium, calcium, phosphorus, magnesium, iron, manganese, strontium, yttrium, silver, zinc, zirconium, lead, chromium, nickel, vanadium, copper.

POTASH ROCK COMPANY OF AMERICA
INCORPORATED
Lithonia, Georgia

DYNAMIC POWER-CRATER *ENGINE*

powers the great new WD-45 tractor

Listen . . . its sound tells you something big has happened in tractor engineering!

Watch three plow bottoms bite into your toughest soil. The hydraulic Traction Booster automatically increases traction of rear wheels for greater pulling power. The new POWER-CRATER engine pours on extra horsepower. THEN—the new WD-45 tractor really talks!

Farm faster . . . deeper! Handle heavier loads, with rugged new helical gear, 4-speed transmission. Get that extra power you have always wanted, *yet save several hundred dollars on the price of your tractor.*

Mark that name, POWER-CRATER. It's power to prosper. It's *yours* . . . in the dynamic new WD-45!

Ask your dealer to DEMONSTRATE these 5 Great Allis-Chalmers Engineering Advancements

POWER-CRATER ENGINE
introduces high-compression turbulence, Center-Fire ignition, high-octane performance with *regular* gasoline.

AUTOMATIC TRACTION BOOSTER
increases traction of drive wheels for greater pulling power as needed.

POWER-SHIFT WHEELS
use engine power to space rear wheels quickly and easily.

TWO-CLUTCH POWER CONTROL
stops or slows forward travel to ease through tough loads; lets power-driven machines continue running.

ALLIS-CHALMERS
TRACTOR DIVISION • MILWAUKEE 1, U. S. A.

Plus*-SNAP-COUPLER! *Handiest quick-hitch for mounted implements ever devised!

"LOOK OUT, boys, here he comes!" Another crop of calves is ready for a new home;
and a fair consignment deal may help the rancher move them on more advantageous terms.

CATTLE WITHOUT CASH

Attention
CATTLE
FEEDERS
We will make arrangements to guarantee original investment plus gains
With the prospects for a good corn crop, your feeders should be purchased shortly. In spite of last year's experience of cattle feeders, we have enough confidence in future market that we will guarantee you a price for the gain on your cattle purchased from us. Consult with your local banker and if he is not able or willing to finance you, we will finance cattle purchased from us to responsible parties.

By Charles R. Koch

WHEN cattle feeders are short on cash, feed prices are high, and ranchers are getting half price for calves and feeders, cattlemen can't be blamed if they lose a little of their gambling spirit and begin to look around for ways and means of reducing their risks. One of the old standbys as a risk reducer is the practice of taking cattle on contract, consignment, or lease. The particular name applied to the operation makes little difference; the idea is that the feeder gets his cattle with little or no capital tied up in them and the other party, who either owns them or guarantees a minimum return after the feeding period, has an opportunity to make profits that otherwise might not be available to him.

If you feel that you would like to take some of the gamble out of your feeding operation and are ready to sacrifice a shot at the big profits for a smaller guarantee, you might consider one of the following types of agreements:

1. A contract in which the owner or speculator retains title to the cattle, the feeder gets the market price for the gains and some share of the spread in price on the original weights.

2. A similar contract in which the feeder is paid a guaranteed price for the gains, nothing on the original weights.

3. A grazing contract at so much per head on a monthly or yearly basis.

4. A guaranteed purchase arrangement in which the feeder buys the cattle and is guaranteed his original investment plus a fixed price on the gains.

In all these arrangements the owner or speculator is hoping to profit by eventually getting something approaching the fat cattle price for his stockers or feeders, or by being able to move his stock at more favorable prices than he could get on a straight sale.

Drawing up an agreement that is fair to both parties is tricky business and any feeder or rancher who is entering the game for the first time had better give it some serious thought before leaping in. "Some of these contracts sound like poker with half the cards wild," is the way one slightly burnt Midwest feeder puts it. A commission man on the Sioux City market, who has arranged a good many contracts for his customers, has come to the conclusion that "the best feature of any contract is a good arbiter."

Market Price Contract

Yet equitable, satisfactory contracts are constantly being worked out. Bruce Russell marketed thousands of fat cattle in the days when he was feeding on his own. Now, as president of the Farmers National Company of Omaha, with the job of managing more than 1700 farms, he is using that experience to the advantage of his clients. He hadn't tried much contracting until recently, but he'd been intrigued by the idea, and in the fall of 1952 he arranged a few deals for some of his principals. The contracts he drew up were examples of simplicity. While no one made money on the cattle market during the winter and spring of 1952-53, the deals were completed without friction between the parties.

One of these contracts is reproduced in its entirety on page 34. In essence the agreement called for the rancher, C. G. Olds, Valentine, Nebraska, to deliver 49 head of yearling open heifers to the farm of Nelson Dunn, at Stromsburg, Nebraska. The heifers were to be laid down at the farm at Stromsburg at no expense to Dunn. Olds retained full title to the heifers and agreed to pay Dunn $2.50 per hundred pounds on the original weights at the time the heifers were marketed. He also assumed all death losses for the first 30 days after delivery to the farm, and half the death loss after that period, based on an original valuation of $22 per hundred. He agreed that all gain in weight should go to the feeder.

Farmers National, on behalf of Dunn, assumed the obligation of caring for and feeding the cattle to a weight of approximately 900 pounds at no expense to Olds. It was also their job and their expense to deliver the fed cattle to market. They

A FEEDER'S corn crop can often handle more cattle than his pocketbook. That's when a feeding contract comes in handy.

had the option of determining the time and place of marketing.

One of the most vital points in this or any other cattle contract is the determination of the original weights. All who have ever had any experience with feeding any kind of livestock on a contract basis are agreed that this is the spot where most of these arrangements crack up. If the feeder accepts original weights that are too heavy, the deck is stacked against him from the start. Among the more equitable ways of establishing the original weights are shrinking the range weights three per cent, or adding seven per cent to the off-car weights (weights at the first point where the cattle are unloaded and before they have had food, water and rest).

Another very fair way of determining the weights is the way it was done with the Olds' heifers. While it was not so specified in this contract, it was mutually agreed that on the day that these heifers were to be shipped to the Dunn farm, they were to be gotten out of pasture at daylight, at which time they would ordinarily be laying down, and were to be driven to the scale without feed and water. The scale was about three miles from the ranch. This, it was felt, would give a weight that was fair to both parties. The heifers went across the scales at an average of 717.85 pounds.

What happened from there on is pretty much the same story that was repeated in thousands of Midwest feed lots that year of the big drop. The heifers were on feed about 90 days, consumed 1400 bushels of $1.50 corn, 14 tons of $25 hay, 3700 pounds of $3.50 protein supplement, about $10 worth of salt and minerals, and ran up a veterinary bill of $10. They were marketed from late January to early March, 1953, at weights averaging 882.5 pounds and at prices ranging from $19.50 to $22.25 (average $21.25). One heifer died midway of the feeding period and the adjustment was made as called for in the contract.

Russell is satisfied that the idea is sound and has similar contracts outstanding for the current season.

"Contracting," he feels, "is ideal on a stable market. It is simply an arrangement to help spread the risks in cattle feeding."

When questioned about the provision in the contract that called for the rancher to pay the feeder $2.50 a hundred on the original weights, his answer was "A feeder just can't afford to feed cattle on gains alone at the present price relationship between corn and fat cattle. He has to make something on the original weights besides. The rancher is willing to guarantee this spread because on a stable or up market there is a good chance that he will be able to market his stock at a price somewhat higher than they would bring as feeders during the fall runs."

Guaranteed Gains

A somewhat similar contract was one that was entered into between the Brickley Cattle Company of Valentine, Nebraska, and Herman Zeisler of Butte, Nebraska. In this agreement, however, Zeisler, the feeder, released any claim to a spread on the original weights in favor of a guarantee of 35 cents a pound for the gains. The contract called for a minimum feeding period of 120 days for 30 steers that went into dry lot at an average weight of 735 pounds. Party of the first part lived to regret the arrangement.

The Rancher's Point of View

From the rancher's point of view no more than half of the feeders who would like to take cattle on a consignment basis are qualified to do so. It is obvious that there is a conflict of interests here that must be reconciled before both parties can be satisfied. The rancher wants his cattle to be given a high degree of finish; the feeder is looking for cheap gains without regard to selling price.

Francis Hanna, whose "Choice Herefords" have moved on consignment from his ranch at Brownlee, Nebraska, to feed lots in Nebraska, Iowa, and Illinois, feels

CATTLE FEEDING CONTRACT

THIS AGREEMENT, made and entered into this 15th day of Sept., 1953, by and between C. G. Olds, of Valentine, Nebraska, hereinafter identified as the party of the first part, and FARMERS NATIONAL COMPANY, of Omaha, Nebraska, Agent for Nelson Dunn, of Lincoln, Nebr. farm owner, and Warren Milton, of Stromsburg, Nebraska, farm operator, hereinafter identi as the parties of the second part.

WITNESSETH: That party of the first part is now the owner, and will continue to own 49 head of yearling open heifers branded ✕L which he will furnish and deliver to the Nelson Dunn farm at Stromsburg, Nebraska, for feeding purposes, party of the first part to pay transportation costs to the farm.

That parties of the second part will feed these cattle for approximately 120 days, and further provisions in regard to this feeding arrangement are described as follows:

PARTY OF THE FIRST PART AGREES TO:

1. Weigh heifers at Ballard-Marsh scales with no fill, weights to be verified by parties of the second part.

2. Deliver cattle to Dunn farm 4 miles east, 1 mile north of Benedict, Nebraska : no expense to parties of the second part.

3. Pay parties of the second part $2.50 per cwt. on original Ballard-Marsh weight, settlement to be made when heifers are sold.

4. Assume all death loss for 30 days after heifers arrive at the farm, and assume one-half the death loss after that period. (For death loss settlement after 30 days, original value of cattle to be $22.00 per cwt.)

5. If any heifer proves to be bred and sells at discount for that reason, party of the first part to pay parties of the second part the difference in selling price on the ga

6. Veterinary expense after first 30 days to be borne 50-50 between the first and sec parties.

7. All gain in weight to accrue to the benefit of the parties of the second part, and settlement to be made at price per pound when sold.

PARTIES OF THE SECOND PART AGREE TO:

1. Care for and feed cattle to approximately 900 pound weight, furnishing all feed at no cost to party of the first part.

2. Deliver cattle to market at no cost to party of the first part.

3. Furnish party of the first part with account of sale.

TIME AND PLACE OF MARKETING TO BE AT OPTION OF PARTIES OF THE SECOND PART.

TITLE TO CATTLE TO REMAIN AT ALL TIMES IN PARTY OF THE FIRST PART.

Signed this 15th day of Sept., 1953, at Stromsburg, Nebraska.

J. B. Ratford
Witness

C. G. Olds
Party of the First Part

Al. M. Thompson
for Harmon Hall
Warren Milton
Parties of the Second Part

THIS IS THE contract that put 49 head of heifers in Warren Milton's feedlot without a penny down.

that "only two out of every four feeders who have had our cattle have done a good enough job to warrant getting cattle again."

"The most common shortcoming on the unsuccessful feeder's part," he continues, "is that he wants to market the cattle before they are ready or he doesn't plan his feed to go the full route. That means you end up selling the cattle before they are grading good enough because the farmer doesn't want to buy more corn and feed.

"I've found from past experience that a tour of investigation should be made to survey the farmer's feed lot, operation, finances, etc. before shipping any cattle. And the farmer, too, should make sure that the cattle will suit and will make profitable gains."

Only a very small minority of feeders are able to work out arrangements directly with a rancher. This brings dealers like Sioux City's Max Rosenstock into the picture.

One of four brothers, all of them in the cattle business on Midwest markets, Max came to this country from Germany during the drought and depression days of the 'thirties. With a mind like a calculating machine and an inherent sense of fair dealing, he quickly established himself as a permanent fixture around the Sioux City yards. His aggressive salesmanship and his bullish market psychology got him into the contracting business. With an average of 5,000 to 8,000 head of feeders out on contract each year he is the leading contender for the title of Dean of Cattle Contractors.

A Grazing Contract

Basically, Rosenstock's contracts are of two kinds—grazing and feeding. His grazing contracts enable him to take calves of 350 to 400 pounds, or yearlings around the 600 pound mark, either from his own ranch or purchased from others, and to put them out on grass for a year in the western parts of Kansas, Nebraska, South Dakota, and Eastern Colorado. Besides the grass, the cattle get about a pound a day of cottonseed cake. He is presently paying $36 per head per year to the range owners, or on a gain basis he pays 11 to 12 cents a pound and furnishes the cake. He claims that under this setup the gains actually cost him about 15 cents.

Guarantee on Investment and Gains

Feeding contracts are a Rosenstock specialty, "Contracting is a way of moving my cattle," he says. "A man will come in who has plenty of feed and is an experienced hand with cattle, but he's afraid of the market; or maybe he can handle, let's say 400 head, but he's afraid to take the risk on more than 200. I'll underwrite his risk. I'll guarantee that he's going to get back his original investment plus gains." And that's exactly the offer he makes to feeders through his ads in the local papers and trade journals.

Some feeders who have tried Rosenstock's deals have come away somewhat soured. Maybe they missed the really big profits by accepting the guarantees; maybe they relied too much on Max's judgment of the market; possibly they held on too long when prices were going down.

(*Continued on page* 123)

THESE CATTLE didn't cost the feeder anything. Whether or not they will make him any money depends on his contract. Present price relationships make it necessary for him to get more than just the market price on the gains to come out ahead of the game.

When the Day's Work Was Done

On Summer evenings when the day's work was done and the supper dishes washed, my father and mother sat on the back porch. Sometimes they read the paper; sometimes they just sat and rested. They had always worked hard, and being tired was a natural and good thing to them.

They didn't talk much; each seemed to know what was in the other's mind, for they had lived together for almost half a century. When my mother had a hard day, my father knew it. "I'll dry the dishes for you tonight," he used to say. But my mother knew that he was tired, too. "No, you won't," she'd tell him. "You'll break them faster than I can wash them."

When their children left home and old age came along and slowed them down, they said they would stay on the home place and keep it going rather than live in the city with one of us. They didn't have much, but their lack was more of thrift than of poverty. Sometimes my mother admired a fur coat in the catalog, or my father said a baler would make his work a lot easier, but they were never really unhappy about the things they knew were out of their reach. They got a lot of satisfaction out of the first lamb in the spring and the first mess of greens out of the garden.

Their greatest pleasure was to have their children come home, with their grandchildren. They stuffed them with food and spoiled them. My mother liked to show off her grandchildren to the neighbors. They were the fruits of her life, the rewards of sacrifices, and doing what she thought was right and proper.

They never set money value on their time. They'd doctor a sick pig, worth maybe ten dollars, for weeks. If it died anyway, they were sorry for it, but not because it was worth ten dollars. They spent what they had and after that they did without, always saving a little against a rainy day. When we went home we always took a present—something we thought they wanted. My mother always said, "You shouldn't have spent all that on me." My father said, "Better save your money, son."

They never wanted anything for free; and they were proud. When my mother saw this picture she scolded me. She was embarrassed because her shoe, which she had cut to ease a corn on her little toe, showed so plainly.

By C. Chester Charles

Sugar Coated Feed

Molasses is a substitute for grain; it will make poor forage palatable, and it is cheap

FEEDERS everywhere have discovered that catering to an animal's sweet tooth by sugar-coating feeds with molasses is an easy way to more milk and more beef at low costs. For ruminating animals, cattle, sheep and goats, it has a double-barrelled usefulness; it can take the place of grain; and it can turn low-grade roughage into appetizing, digestible feed.

"It's cheap feed—one of the cheapest you can get. And it's good feed." That's what Melvin Leirman of South Lebanon, Ohio, thinks of molasses. "Nothing better, even on good alfalfa."

But what if you had a barn full of fair but rained-on hay that your cows wouldn't touch? Leirman faced that problem two years ago when his 27 dairy head came off pasture.

"Molasses kept me from going on the rocks that winter," he says. "The county agent advised me to try molasses—blackstrap—and the cows couldn't get enough of that hay. Now I'm sold on molasses."

Molasses feeding requires no new equipment nor any change in the usual grain and hay feeding methods. It fits into any program of feeding with little outlay, though large farms have found labor-saving equipment profitable. Leirman started with nothing more than a five-gallon can of blackstrap from his feed dealer. He uses a four gallon garden sprinkling can punched with larger holes. He puts in a quart of molasses, fills the can with lukewarm water and stirs it with a stick. "Hot water seems to turn the molasses bitter and cold water won't mix so well," Leirman says. The diluted liquid is sprinkled over the roughage in the manger. The cows take over from there—fast. Each five head get a quart of syrup night and morning. The hay readily absorbs the liquid and the boards of the manger are licked clean so there is no problem of messiness. Leirman is convinced that molasses is an important factor in keeping his winter milk check as high as his summer average.

A STEER can't wipe his own chin—his tongue isn't built for it. Blackstrap resembles old-fashioned New Orleans molasses. Cattle will balance their own ration.

"Be sure you get the diluted syrup the same temperature all the time and never let the utensils get dirty," he says. In the evening, he puts the hay in the mangers, goes to supper and later returns to put the molasses on hay that remains. This results in a good cleanup. "They not only eat more, they drink more water and they are always in good shape, for molasses is like a tonic. When a cow goes down with milk fever or ketosis, what's the first thing the vet tells you: 'Give her molasses!' When you feed molasses right along, they don't go down."

What Is Molasses?

Everybody knows what molasses is but the scientists. Briefly, blackstrap is the relatively simple liquid left behind when sugar is crystallized from cane juice. Citrus, beet, and corn molasses are likewise industrial byproducts, all produced in quantity but of limited usage; hence they are comparatively low in cost. Yet in the opinion of M. L. Wolfrom, Ohio State professor of chemistry, "Not less than 15 per cent of the total solid material in blackstrap molasses represents an unknown field and until it is fully explored it cannot be said that anyone really knows what molasses is."

We know it is rich in carbohydrates and in minerals such as iron and calcium and is a good source of vitamins B and E. Its protein content is negligible, but the sugar runs from 48 to 55 per cent and is practically 100 per cent digestible. We know it contains seven amino acids, from which protein can be formed, plus the newly discovered myo-inositol, a highly important factor in animal diet as well as an essential to growth of organisms in the rumen. Further research is expected to prove the presence in molasses of trace elements that are vital to rumination.

But its main feature is palatability. It's candy to cows. The aroma and appetizing flavor molasses imparts to feeds are relished by all livestock. Maryland investigators reported blackstrap as increasing the digestibility of hay by 24 per cent and of hay combined with grain by 14 per cent, thereby not only replacing part of the grain in the ration but making the rest of the ration go farther. On account of its palatability, the USDA points out that molasses adds more to a ration than its chemical composition indicates.

TO SPEED UP molasses in January try a few loops of electric heating cable around the drums.

How Much Should I Feed?

The amount to feed should be determined by the quality and amount of the roughage in the ration, as well as the price relationship of molasses to grain. Authorities agree that at levels of from 5 per cent to 10 per cent of the complete ration, including roughage, molasses has a value of 80 percent or more of corn. With both diary and beef animals, where a minimum of grain but a liberal roughage program is used, molasses can equal corn in feeding value if sufficient protein is supplied. The value of molasses decreases when added to a ration made up of very palatable ingredients and when it is fed to cattle in large quantities.

In areas where molasses is more available and cheaper than grains, free-choice feeding is practical. Veteran feeders like to begin slowly. They start with a few pounds of molasses per head daily, with gradual increases so that by the time a sheep or cow has reached reasonable quantities, the novelty of molasses has worn off and excessive intake is avoided. Cows, like children, can make fools of themselves if left alone with a barrel of candy.

Louisiana stockmen regularly feed such combinations as 100 lbs. of cottonseed meal stirred in a 55 gallon drum of molasses, fed free-choice. They find that both beef and dairy stock average a pound of cottonseed and two quarts (six pounds) of molasses daily and maintain growth or production with no other feeds than a little dried pasture and very limited hay. This corresponds with national averages which show that dairy cows normally take 4 to 5 pounds of free choice molasses, with beef cattle consuming 6 to 9 pounds. On the other hand, in experiments currently being conducted under J. P. LaMaster at Clemson Agricultural College in South Carolina, cows given unlimited access from the beginning consumed up to 27 pounds daily of molasses, so that severe scouring resulted. The practical limit allowed for best results was nine pounds of blackstrap a day.

The owners of a strictly big-time cattle operation, the Morton Brothers of Elizaville, Indiana, have solved the problem of how much molasses to use on a dollar-wise and nutrition-wise basis. Wendell Morton advises that in steer fattening molasses can be substituted for corn, pound for pound, up to 4 or 5 pounds. After that, its effectiveness in relation to corn diminishes. He says, "We feed molasses both summer and winter to the 1100 or so cattle we fatten annually. During the winter, corn silage is fed to appetite, with five pounds of grass silage to be certain the vitamin A requirements are met. Along with this we used to feed eight pounds of cracked corn per head, but now we give them five pounds of corn and three of molasses—and we save money doing it—with molasses at about 1½ cents a pound and corn costing 2½ to 3 cents."

The Mortons rely heavily on roughage as silage, as pasture, and as fresh-cut, green-fed forage. In such a program, molasses can't be beat for the palatability and digestibility it adds along with possible reduction in the cost of concentrates normally fed. Each month the Morton Brothers use about 6,000 gallons of molasses, pumped from an underground storage tank of large capacity to a one ton tank inside a mixing building, where the blackstrap is pumped on grain and roughage that has been elevated to distributing trucks which serve the dry lots. (See Bulk Handling, page 48) These self-unloading trucks mix the feed with the molasses by means of beaters which operate as the load is conveyed into bunks. The two-tank, two-pump installation cost just over $1,000, their complete expenditure to convert to high-powered molasses usage.

Paul Morton, the other half of the brother partnership, has this to say about inexpensive roughage: "We like cobs—but mostly as a cattle starter, for we like to go from a less palatable to a more palatable feed." If you feed cobs, you can start by mixing them with molasses; later you just spread the molasses over the cobs and finally you can keep the cobs and molasses separate, but the cattle will eat the molasses and then go over to fill up on cobs.

When To Feed Molasses

Most molasses feeders believe blackstrap should be considered from two feeding angles:

1. When the price of molasses is high, it can be used to induce stock to eat more cheap cellulose. It must be remembered that molasses is low in protein and should be balanced with protein supplements. With molasses at 45 cents a gallon, an abnormally high figure, the addition of 12 gallons, costing $5.40, to a ton of mediocre hay can raise it from bedding prices of $15.00 a ton to the value of $30.00 or $35.00 hay. Even at prices in excess of 50 cents a gallon, molasses may

THESE CATTLE are being fattened on corn cobs and urea, with blackstrap fed free choice on the side. The blackstrap supplies the "quick energy" for the rumen bacteria.

THIRTY-FIVE TONS of molasses a month flow through this hose on the Morton Brothers farm. This replaces, in feed value, about 923 bushels of corn at a savings of $330. The Mortons are feeding out 1000 head of cattle.

be a good buy if it permits the utilization of low grade roughage or pasture.

2. When molasses is cheap, in addition to causing increase in cellulose consumption, it can also replace up to one third or more of higher-priced carbohydrates like corn. From both nutritional and price points of view, a rule of thumb for maximum benefits to the average farmer is to limit molasses to ten per cent of the starter ration for ruminating calves, or from 25 to 50 per cent of the carbohydrates given steers and mature dairy stock. Sheep should not receive over one pound daily for best results. In these instances, whenever 6½ gallons of molasses (equal in feed value to a bushel of corn) costs less than a bushel of corn, *it pays to feed molasses,* as a substitute for grain.

Of the three carbohydrates, sugar digests very fast, starch more slowly and cellulose very slowly. If a cow gets only cellulose, digestion is so retarded that she can starve with a full belly and no appetite. But molasses, which is largely sugar, not only digests quickly itself, but pushes other foods, including cellulose in cobs or woody pasture, into more rapid assimilation, and stimulates appetite.

Methods of Feeding

Free choice molasses feeding, more frequently practiced by beefmen, is simple. A drum, raised an inch or two, is inverted in a tank or trough to operate much like a chick waterer. For self feeding in tonnage lots, three inch pipes and float valves are connected directly between troughs and large elevated shortage tanks. In rations, controlled amounts can be added to grain or chopped roughage while augered into bunks; diluted with one or two parts of water, molasses can be poured on feeds or sprayed on with

(*Continued on page* 117)

By Grant Cannon

Dry Farming

Moisture is saved two years for one crop

THE EARTH IS OPENED with deep tillage so that the scant moisture will penetrate. When the soil moisture is three inches below the surface at planting time, they seed with the Graham-Hoeme plow. Even drinking water must be hauled to these farms.

IN THE FALL of 1886, David Broadhead, a young Mormon farmer, plodded over 20 acres of cleared sagebrush land, his arm moving rhythmically as he sowed the plot to wheat. He had dug ditches along the contour of the hill from Four-Mile Creek to irrigate the land in the spring—a normal proceedure for a farmer in this region of 13 inch rainfall where no crops were grown without the tedious job of watering them. That winter, the winds blew fiercely, the temperature dropped below zero, but only light, dry snow fell. David Broadhead and the people of Nephi, Utah, where he lived, knew that they were in for a hard year, for it takes melting snow in the mountains to feed the streams through the summer.

Four-Mile Creek had so little water in the spring that irrigating the wheat was out of the question and the crop was written off as a total loss. But the young wheat pushed up its fresh leaves and blanketed the 20 acres in green. As the garden plants withered and died without water, the wheat continued to grow, to send up tillers, and to form heads. When harvest time came, the whole plot was covered with golden, heavy-headed wheat. Broadhead harvested better than 15 bushels of wheat to the acre. And he began to think.

He looked over the great alluvial roll called the Levan Ridge which lies like a gently swelling apron at the foot of the mountains. Until then it had been thought of as just space—space where you could pasture a few head of stock in early spring, and take care of lambing before moving the sheep to summer pastures on the mountain, but really of very little value. "If it will grow fifteen bushels of wheat to the acre in a year like this," he thought, "that land is valuable." That winter he filed an application for a quarter section homestead on the ridge next to his farm and attached a sworn statement that he could grow wheat on it without irrigation.

When Broadhead's application reached the land office, they took one look at it and turned the affidavit over to the grand jury which promptly indicted David Broadhead for perjury. They *knew* that no one could raise wheat on this arid stretch without watering it.

After a group of his neighbors had bailed him out of jail and convinced the authorities that he *had* raised wheat on dry land, Broadhead returned to his farm and renamed it Perjury Farm. Soon other farmers were tearing up the sage brush and sunflowers on the ridge and proving that Broadhead was no liar. Wilfred Belliston, who can recall this pioneer farming on the ridge, worked with his father on one of the first dry-farms. "We broke forty acres the first year," Belliston said, "and planted it to a wheat called Koford which was supposed to have come out of an Indian mound. The next year we broke new ground and planted all of our land, stubble and new ground, to wheat. That year we learned one of the main secrets of dry farming—you can't plant crop after crop and expect to get a yield. The new land produced a crop, but the land that had been used the year before was a failure. Since then we have let the land rest a year after every crop, using the water that collects in the soil for two years to produce a single crop."

Other farmers in different parts of the State were also discovering that some crops could be grown without irrigation, but the news about dry-farming did not spread rapidly until the railroads began passing the word about this new kind of agriculture, luring farmers west to the vast stretches of cheap railroad land. It was soon recognized that if a farmer could plant only half his farm in any one year he needed a larger farm. In 1904 the Kinkade Act allowed the homesteading of 640 acres in western Nebraska and five years later 14 States enlarged the homestead tract from 160 to 320 acres for non-irrigable land. Today farmers are cultivating millions of acres of arid and semi-arid land with dry-farm methods.

The usual definition of "dry-farming" is the growing of crops without irrigation in areas where it is so dry that special soil practices, such as summer fallow, must be used in order to make a crop. Such practices must usually be followed on land which receives from 12 to 20 inches of rain. Peas, pinto beans, alfalfa, grasses, and several grain crops, such as sorghums in the southern plains and corn in the eastern border areas, have been found to be suitable for dry-farming as well as the major crop, wheat. In the areas where rain is more plentiful and in some parts of the country where scant rain comes during the growing season, the rigid practices of the dryest dry-farmers can be modified a little—rotations can be set up, the fallow year can be put off to every third or even fourth year depending on the rainfall, a wider variety of crops can be grown. But on the Levan Ridge, where the average rainfall over the past 50 years has been a fraction over 13 inches, water must be hoarded.

Clarence Paxman, who started dry-farming on the Levan Ridge when he was 11 years old, when there was only a trail from Nephi to Levan, has said, "The main point in dry-farming is getting the work done at just the right time—and every season is different so you can't set up a time-table in advance." Paxman, like most dry-farmers, lives in town and drives out to his unfenced acres, 1340 of them, half in wheat, half fallow, when there is work to be done. Before good roads and cars, the farmers used to set up a temporary camp on the dry farm during the working seasons and haul water for themselves and their teams. Usually these

were strictly men's camps because women hated to put up with trying to keep house with such a limitation on water. They still say of a frustrated woman, "She's as mad as a woman on a dry-farm."

"Right after harvest," Paxman said, "I like to get out on the stubble with a disc harrow to get the volunteer wheat and rye seeded so that they'll start growing in the fall. Then, when they've made a good stand, I go back over the land and kill them. Sounds a little queer, I know, but if we didn't get rid of all the weeds and growing plants they would come up in the spring and use the water during the fallow year. Out here we figure that rye is about the worst weed we have—ten per cent rye in your crop will reduce your wheat yield by thirty per cent, and if you don't go through the field when the rye is heading, about two weeks before the wheat heads, and pull it out, you'll get docked at the mill for your wheat. So far, the only device I've ever heard of for separating rye from wheat is to feed it to turkeys—they'll eat the wheat and spit the rye out of the side of their mouths like kids do watermelon seeds.

"After I've disced the land, I go over it with a Graham-Hoeme plow to give a deep cultivation, break up the earth, and let the moisture in. Some of the farmers around here use a big wheatland disc plow with the discs set close together so that it will cut into the soil, but won't turn the stubble. In the old days we used to think that it was important to build up a dust mulch to stop evaporation and we used to use a moldboard plow to turn under all the stubble and then harrowed with a spike tooth to build up the mulch. That way we got a lot more erosion than we do with a good trashy surface and the soil tended to puddle up and crust and kept the water out, so we changed our ways of farming. Always we try to plow on the contour and seed that way too, so that the ridges will hold back the water and let it sink in."

Careful tests have shown that the loss of moisture through evaporation from the soil is not nearly as great as it was once thought to be. The real drain on the water held in the soil comes from a growing crop—whether it is a crop of wheat or a crop of weeds. In this arid region the plants give up to the dry air a thousand pounds of water for each pound of dry matter produced.

WEEDS WASTE WATER and must be eliminated during the fallow year. Scattered weeds, such as these Russian Thistle, are chopped out with a shovel or a hoe; large patches are uprooted with a rod weeder.

"As soon as we can get on the land in the spring," Paxman continued, "we hit the weeds—rye; redroot, a sprawling weed; and Russian thistle, which most people recognize as the old tumble weed. If the weeds come up later after rain we hit them again. The ideal way to leave the soil during fallow is rough and open with some stubble rubbish on it, but no weeds."

Paxman uses a rod-weeder, a device which drags a square steel rod beneath the surface of the soil and, by a power hook-up with the wheel of the weeder, keeps the rod turning in the opposite direction to the line of travel; this kicks the roots of the weeds out of the soil. Other devices which are used are duckfeet cultivators and a sub-surface blade which sheers off the roots of the weeds when it is pulled through the soil.

Around the middle of September, when the aspen high on the mountain slope is turning gold, the farmers probe into the earth with their fingers to see if the moisture is near enough to the surface for planting. Here, where there is no Hessian fly problem, wheat is planted early enough to give it a chance to form a good root system before the killing frosts move down the mountain, but not so early that it uses up a lot of the precious soil moisture on useless fall growth. The root system is important; dry-farm wheat pushes its roots down six and seven feet into the earth, searching for water.

"If the moisture is close to the surface," Paxman said, "I'll use a spike-tooth harrow pulled right in front of the drill to break up the clods. If the moisture is down around three inches, I'll use the Graham-Hoeme plow with a seeder attached. And if the moisture is below four inches, I'll wait as long as I dare and then around the first of October I'll plant it with a harrow and drill and start praying for rain.

"On a dry farm we seed at the rate of around forty to ninety pounds to the acre, which is somewhat less than we use on our irrigated land. The danger of over-seeding is that you'll get a good heavy stand of wheat in the spring and it will use up all the moisture in the soil before it heads out. I remember once when I was a youngster back in 1914, I came to the end of planting with quite a lot of seed left, so I kept stepping up the rate

SELF-PROPELLED COMBINES do most of the harvesting in this arid country. Yields average 22 bushels on the Levan Ridge.

A GRAPH drawn on the dust of his combine helps Frank Morgan explain the relationship of yield and protein content to moisture.

of seeding until I'd used it all up on the last nine acres. When the crop came up, my father took one look at that patch and said, 'Boy, we're going to have to get in there and thin that stuff out or it won't make a crop.' But we didn't get at it until spring and then we had such a wet season that we couldn't get machinery on it until we figured it was too late anyway; so we let it go. You know, that year we made it and harvested sixty-seven and three-fifths bushels to the acre on that patch, which is probably a record. Most years we wouldn't have got a thing.

"If we get a beating rain that forms a crust or if the ground is crusted over in the spring, we pull a rotary hoe, a spike-toothed roller, over the field," Paxman continued. "During the winter, you worry a lot about the wheat if you're the worrying kind, but there's nothing you can do about it. Wheat can stand quite a bit of freezing, but when you get thawing in the day and freezing at night, the moisture runs off and the roots get torn off with the heaving. Yet, you don't want it to break off and be summer all at once either; the wheat shoots up without stooling and you get a thin yield. What you want is a good solid winter with plenty of snow that melts off slowly into the soil. In 1952 we had three or four feet of snow and thought we were going to have a bumper crop, but it stayed on and on. In April I walked out on the crust of the snow and dug down and measured two feet of snow still there. When the snow finally melted the wheat that came up was weak and spindly and the ground baked into big hard clods—you could drive over the fields anytime and your tractor wouldn't leave a mark. We harvested around five bushels to the acre, which is the first and only time we have had a crop failure on the ridge. This year some of that moisture probably helped boost our yields and we went better than the twenty-two bushels which is our average.

"After the wheat comes up in the spring, you don't do much to the crop until harvest except to try to weed out the rye. The rye grows about a foot taller and heads out a couple of weeks earlier than the wheat so we send the kids through the field with sickles to lop off

(*Continued on page* 135)

These 10 farm leaders were asked:
Should the Government do anything special to help the farmer, and if so, what?

Ezra Taft Benson
Secretary of Agriculture
Washington, D. C.

Yes. We need a program of storage and price supports to reduce the risk of agriculture and protect the food supply.

George D. Aiken
U. S. Senator, Vermont
Chairman, Committee on Agriculture

Yes. Many of our farm products are perishable and must be sold when ready for market, regardless of price. In addition, the large number of small, independent farmers are at a distinct disadvantage in dealing with the relatively small number of large, commercial establishments in the sale of products. The government price support program has helped farmers tremendously in meeting these two particular problems and the loan system on storable commodities has been effective.

Certainly we cannot fail to give our farmers some price protection against adverse market conditions beyond their control. I have consistently believed that our program must be flexible in order to give the Secretary of Agriculture ample discretion in responding to varying conditions from year to year.

Milton R. Young
U. S. Senator, N. D.
Senate Committee on Agriculture

Yes. I firmly believe that nothing less than 90 per cent of parity price supports is necessary. Until a better way is found to stabilize farm prices, I am for a program of high level price supports. I do not favor flexible (70 per cent to 90 per cent of parity) supports.

Dr. John D. Black
Harvard University
Cambridge, Mass.
Dr. Black helped develop the "parity" concept.

Yes. A floor under farm incomes at 80 per cent of parity income, with parity income based on output times price. Supplementary income payments as needed to assure 80 per cent parity income. Parity should be modernized as in the Agricultural Act of 1948, with no nonsense arrangement like "whichever is the higher" but modernized in terms of income, that is, price times output, not prices alone.

Supplement the above by crop and livestock insurance to take care of unusual losses of individual farmers due to weather, insects, and diseases.

M. W. Thatcher, President
National Federation of Grain Cooperatives
St. Paul, Minn.

Yes. The concept of parity price is all wrong if as a result of it we are going to lose a substantial part of our export market. If we are to raise less of the feed grains, the human food grains, and seeds, cotton, and tobacco because of the market limitations, and expect the livestock people to live with our limitation of markets, then there must be a new concept of parity. With a smaller production of the agricultural output, there must be a compensating change in the parity formula to lift the domestic price that the farmer is to receive. He simply can't do on less income than the average he is receiving today.

American Farm Bureau Federation
Chicago, Illinois
1,500,000 members

Yes. Farm price supports are a necessary protection against unreasonable price declines. However, we in the Farm Bureau are convinced that the higher
(*Continued on page* 134)

FACE FACTS

MR. PEACH was alone, but he was talking anyway. "Sixty thousand dollars for 200 acres! Did I do right?" Mr. Peach raised his foot and placed it carefully on a strand of barbed wire close to the fence post that anchored it. Soberly, as befits a man who has just spent sixty thousand dollars, Mr. Peach studied his leather gloves, his eyes following the new stitches in the broken seam of the left thumb, put in by Mrs. Peach that morning. "You'll freeze your thumb off," she had said.

Before him lay the 200 acres, ice-crusted and covered with the broken corn stalks left by a picker. A nest of white buildings in the far corner of the land ahead of him was the only break in the gray, winter landscape.

For 20 years Mr. Peach had farmed. What he made went into the savings account that read, "Mr. and Mrs. Albert Peach, and/or." Yesterday, it all went as down payment on the land before him. "Three thousand a year pays it off," he said softly, the three thousand sounding more comforting than sixty thousand. "Can I get it from these 200 acres?", he asked himself. A man of 40, Mr. Peach remembered twice in his lifetime when neighbors lost their farms for the want of a sum like three thousand dollars. "I could lose the works," he thought, "if the bottom falls out two years running."

But Albert Peach, good farmer that he is, won't lose everything; in fact, barring fire, flood, theft, plague and drought, he's got it made, which is a lot better than could be said for his father.

In Albert Peach's lifetime a profound change has occurred that prevents catastrophies due to quick, sharp price breaks. There is a little more safety and a little less risk for families who invest their savings in their own farms today. The big change that can help Mr. and Mrs. Albert Peach, and hundreds of thousands like them, is a safety device in the form of disaster price supports, which are now the law of the land; and all political parties support them. Disaster price supports are a government-guaranteed floor to help prevent a farm price collapse.

The half million farms foreclosed in the twenties and the two million farms lost in the thirties are today more firmly anchored to their owners, because corn or wheat or cotton can't be halved in price in a fortnight. Farmers can feel more secure in saying to themselves, "I'll risk the sixty thousand."

To take advantage of price support legislation it is necessary to understand it and the best way is to begin at the beginning.

ON PRICE SUPPORTS

If there never was a fire, people would not buy fire insurance. The toboggan slide that farm prices took in a few short months in 1920 caused people to want insurance. Corn went from $1.85 to 67 cents. In contrast, the prices of goods the farmer had to buy stayed the same.

The hard times of those days are recalled by Henry Olden, of Rising Sun, Indiana. "My wife and boy ran our farm while I hired myself out for cash. I took a mattock and worked at fifty cents a day near Mt. Sterling, Ky., grubbing roots and brush. For 45 cents I got a bushel of corn and the mill took out a gallon for grinding it. For a nickel, I'd get a bag of salt. We lived a year on corn bread and and milk."

Poverty came to live in a half million farm homes like Henry Olden's and with it the history of price supports began. Early in 1921 Congress created a joint Commission of Agricultural Inquiry and ordered it to report its findings within 90 days.

"You Can't Legislate Prices"

The Commission recommended special legal status to cooperative marketing associations so that the farmer could increase his profit by processing and marketing his crop. The Commission asked for funds for farm-to-market roads and reduction in freight rates on farm products. It concluded by saying: "Prices cannot be adjusted by legislative formulas." It looked as though price supports were born dead.

Prices kept right on falling, and in January, 1922, Gregory Svenson of Brillion, Wisconsin, remembers, "We burned corn in the stove. It was cheaper than coal."

President Harding called a National Agricultural Conference. Cautiously, President Harding told the Conference: "It cannot be too strongly urged that the farmer must be ready to help himself."

But the men who made up the National Agriculture Conference sensed what farmers wanted to hear and came up with the slogan, "Equality for Agriculture." Farmers of 1922 wanted neither charity nor price supports. All they asked was that the price of their crops wouldn't fall five times as fast as machinery, fertilizer, and building material. "Equality for Agriculture" became the by-word of all farmers, and Congressmen began to see it in their daily mail. The man who created the slogan was George N. Peek. His actual words were:

"Agriculture is necessary to the life of the Nation; and, whereas the prices of agricultural products are far below the cost of production, Congress and the President of the United States should take such steps as will immediately re-establish a fair exchange value for all farm products with that of all other commodities."

These are the words of history. They denied that legislation to improve farm prices was impossible.

The Conference urged that legislation should immediately be drawn so that the price the farmer receives for crops would not fall faster than the price he pays for goods.

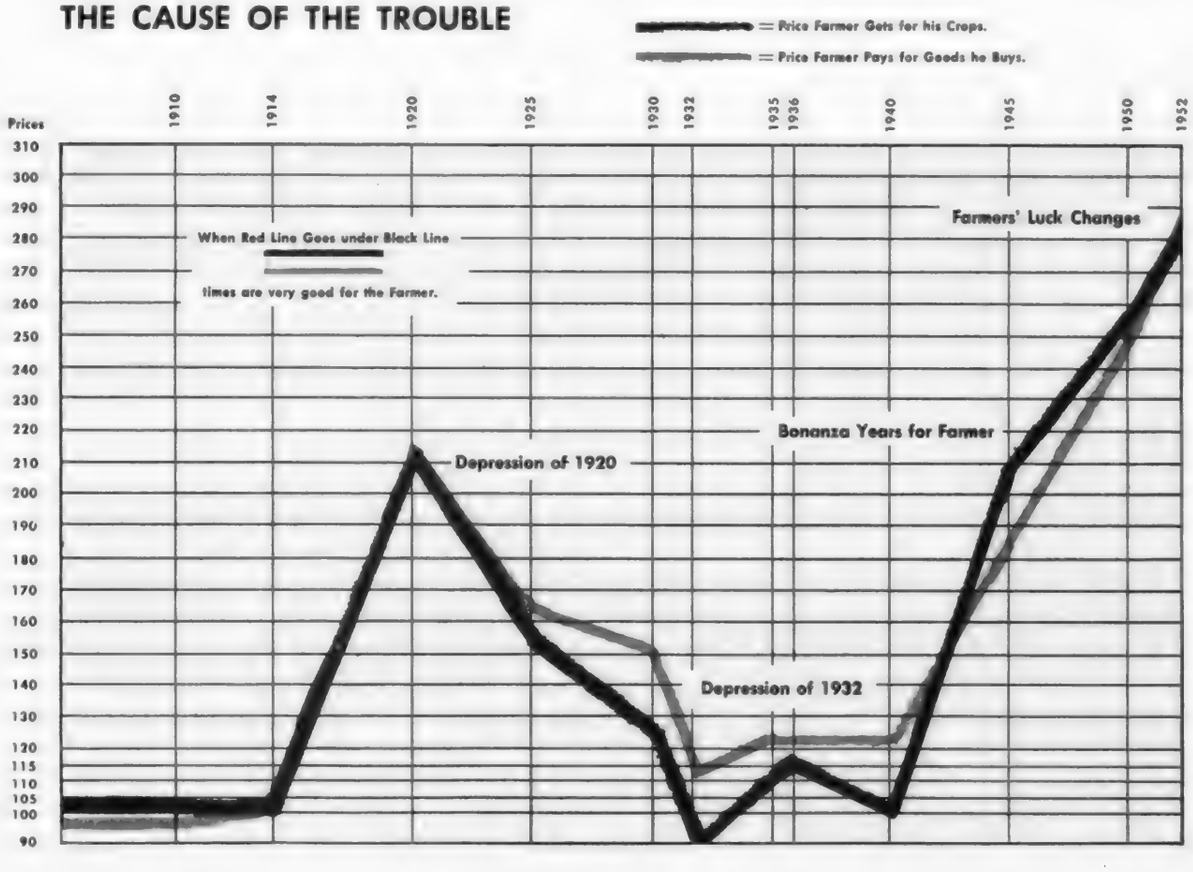
Nothing was done. But price supports, under the slogan "Equality for Agriculture" became the farmer's goal.

In January, 1924, however, a bill reached Congress called by the name of its two sponsors, McNary-Haugen. This bill was suggested by George N. Peek and Hugh S. Johnson, who were associates in the management of the Moline Plow Company at Moline, Ill.

Again, only the words of history itself will suffice to describe the plan. The authors said of it:

"This is a plan to secure equality for agriculture. Establish each year the fair exchange value on the domestic market of each principal crop, by computing a price which bears the same relation to the general price index as the average price of such crop for ten pre-war years bore to the average general price index for the same period. Protect this fair exchange value from world price by a tariff fluctuating with it and with world price.

(*Continued on page* 128)



By William Yaw and Grant Cannon

Bulk Handling

Planning and machines save labor in moving bulk-feed, fertilizer, and crops

"WHAT a man needs for this job is a weak mind and a strong back," Bill Chipton used to tell his boys as they started pitching hay in the blistering heat of an Iowa summer. It was not exactly an original remark—farmers had always said it. They said it at haying time; and when they were sweating and choking in the dust and chaff of the threshing machine; and when they threw the silage onto a cart and then scooped it out to the cattle; and when they shoveled manure and lifted bags of fertilizer and jerked milk cans out of the cooler and grunted as they hoisted a mealy sack of feed onto their shoulders. All this lifting and heaving developed muscles in the young, hernias in the middle aged, and bent backs and cardiac conditions in the old, but this was accepted as the farmer's way of life.

Farmers put up with the strong-back work as long as they had to, but they weren't weak minded. They were constantly rigging up devices that didn't need liniment to do the heavy work. We certainly haven't hung up the scoop shovel and the pitchfork yet, but engineers, efficiency experts, machinery manufacturers and other specialists have joined the farmer in trying to find better ways to move the bulky supplies and products of the farm. One result has been that farm output for each man-hour of labor has increased more than 45 per cent between 1940 and 1950. Over a longer period there is even more dramatic proof of change. A bushel of wheat which required 60 hours of human labor to raise back in 1830 can now be produced with less than two hours work.

Today, the farmer realizes that he needs to use and produce even more bulk for economy and handle it less for efficiency.

On poultry and hog farms, the mixing and moving of concentrated feeds is the biggest bulk handling job and the streamlined granary is the hub of the operation. Robert and Don Bernard, who operate adjoining farms near New Vienna, Ohio, have done an excellent job of converting an old barn on Robert's farm into an efficient feed handling establishment. The two farms, Don's 125 acres and Robert's 101 acres, together raise 6,000 turkeys, 300 to 400 hogs, and handle 5,000 laying hens annually.

Together they raise around 75 acres of corn each year with the rest of their land in oats and pasture crops. This produces about half of the feed needed for their poultry and hogs. All of their concentrates, including proteins, middlings, bran, pulverized oats and antibiotics are bought off the farm. Some of the poultry feed is purchased ready mixed and delivered in bulk to the self-feeders, but most of their feeds are mixed on the farm.

The converted barn is an example of what two men with an aptitude for mechanics can do to make back-breaking scoop shovel work obsolete. Shelled corn, oats, and other feeds are dumped hydraulically into a shallow pen on the barn floor which is equipped with a drag to pull the material into the elevator tube. The tube elevator delivers the grain to one of ten overhead bins. This elevator is also used to shift grain from one bin to another.

When he is ready to mix a batch of feed, Don Bernard transfers the ingredients into one of three smaller bins at the very top of the barn from which he can direct their flow into a one-ton scales hopper. The beam of these scales is located on the main floor next to the switches which operate the elevator, drag, and mixer and within reach of the selector handle which controls the distribution spout of the elevator. The shut off controls for the three overhead bins are also located near the scale beam, so that from this spot Bernard can move grain from bin to bin, weigh it, and let it flow from the scales hopper into the hammer-mill in the basement without taking a step.

From the hammer-mill the ground feed is blown into a one-ton mixer on the ground floor and from there, after mixing, elevated in what is called a bazooka auger elevator, which carries it out over the driveway to dump into a self-unloading truck. In the event the truck is out delivering feed, Bernard can blow the mixed feed through the mixer into another bin where it is held until the truck returns, and go on with another batch.

The truck is another labor saver in this matter of handling bulk. Its welded steel body is divided into two compartments, each of which holds two tons of feed. Either compartment can be unloaded by an auger, driven by the power take-off and fed out into the big poultry and hog feeders through a long spout which was once the unloading spout on an Allis-Chalmers combine before the Bernards began tinkering with it.

BULK DELIVERY (left) lets the other fellow do your lifting. Gravity fills the self-unloading wagon (right) as it stands on the scales at the Morton farm. The flow of corn and cob meal is cut when the scale beam rises.

"In the old days, before we built this truck," Don Bernard said, "we used to maneuver the truck as close to the feeders as we could to save work and feed when we shoveled it in. Invariably we'd manage to over-do it and snag the feeder or bump into it. Now we fill the feeder from about three feet away without spilling a cupful of feed; we do it in about a tenth the time and save labor, time, and quite a tidy sum that went into repairing the feeders. We feed from fifty-five to seventy-five tons of feed a month—that's about two tons a day—and it used to just about kill a morning lifting the feed into the truck and shoveling it out, to say nothing of just about killing me.

"Reducing our time-saving to cash, I figure it about this way. The barn equipment, bazooka elevator, and truck cost us four thousand three hundred dollars. In labor alone the set-up saves us around two dollars and twenty-five cents a ton or a thousand six hundred and twenty-six dollars a year. Our saving on sacks more than equals the cost of electricity to operate. And these figures don't tell the whole story; if we didn't have the hammer-mill and mixer, we'd have the extra cost of hauling the feed to the mill, waiting around while we were having it ground and mixed, and hauling it back again. The hauling, milling, and time spent on the job would cost us another five dollars a ton."

The Push-button Mixer

A grinding, mixing, and feed delivery device that is practically automatic has been worked out by Professor E. W. Lehman, Head of the Agricultural Engineering Department of the University of Illinois, and engineers from the Public Service Company of Illinois. This device, which is manufactured by the C. S. Bell Company, of Hillsboro, Ohio, brings ear corn or shelled corn, other grains and supplements into a hammer-mill where it is ground and mixed at the same time and then blows the feed directly into self feeders or into a storage bin.

With this device, the corn is pulled from the crib and into the mill by a drag. The rate of the corn movement is carefully measured and metering devices are adjusted so that the small grains and supplement flow into the mill in exactly the right amount to make the proper feed mixture. A control panel makes it possible for the farmer to set the machinery in motion and predetermine the amount of feed to be mixed in the batch. When this is done he pushes the starter button and goes on with other work—the control panel automatically takes care of such matters as overloading and stopping when the batch is done.

One of the first installations of this new device was made on a 400-acre farm near Manteno, Illinois, owned by Donald Stauffenberg, who milks 78 head of dairy cows and feeds around 200 head of hogs a year. Stauffenberg uses two auxiliary blowers with the mixer so that he can deliver the dairy feed to an overhead bin in the dairy barn 165 feet away from the feed bins, and can blow the hog feed another 175 feet further to the hog barn. He figures that the metering devices which measure out the oats and two different kinds of supplement are accurate to within 25 pounds for each ton of feed mixed. Grinding feed for cattle with a one-half inch screen in the hammer-mill, the machine will deliver two tons an hour; hog feed, which is ground through a one-quarter inch screen, takes an hour for a little over one ton.

"The over-all cost of $3,000 for the mill and blowers seemed like a lot of money at the time I bought it," Stauffenberg says, "but I have figured what I would have spent for grinding at the local elevator and am sure that it will pay for itself in four or five years. During the year just before we installed the equipment I made fifty-seven trips to the elevator to get cattle or pig feed ground and paid a total bill of five hundred and twelve dollars. But besides the money costs we had to load the feed onto the truck and haul it to the elevator—usually when we were busiest with other work—unload it there, and then, after they had loaded the ground feed back onto the truck, we'd haul it home, unload it, shovel it onto a cart at feeding time, and shovel it off to the animals.

"Now we can have feed delivered to the over-head bins in either barn in a matter of minutes. We open the spout on the bin and let gravity fill the cart. We handle the feed once when we feed the animals instead of five times as we used to do. We had help in installing the machine from the University and from the Public Service Company of Illinois, but even with the labor costs added to what we spent I'd think the equipment was a good investment."

Feeding Hogs

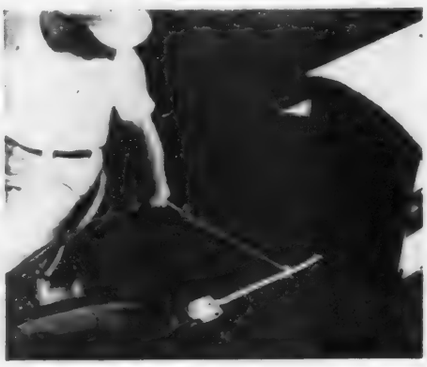
On the C. M. Williams farm in central Indiana they handle 75 sows farrowing twice a year. The sows average eight pigs per litter and the pigs reach market at five and a half to six months. As proof that he has done a lot of thinking about the handling of the bulky feed problem, Williams points out that one man handles the whole pig enterprise with the help of an extra man at farrowing time. The devices Williams uses to make bulk handling easier are self-unloading wagons, tank wagons for watering, and large, ear-corn self-feeders. Another important factor is the arrangement of the pens.

"We keep the pigs with their mothers in a swine court," Williams says. "The houses are lined up two to a half acre alfalfa-ladino pasture on opposite sides of a driveway. Self-feeders and waterers are arranged so that they serve two pens, that is four sows, to cut down on the number needed and all of them are set so that they can be filled from the driveway with no gates to open and close. The auger on the tractor-drawn wagon and the water outlet are big enough so that the feeders and waterers can be filled in less than two minutes for each stop. We're trying to cut this time by fixing it so that the oper-

(*Continued on page* 99)

KIDS ROLL BALES on and off the elevator; the farmer heaves them into stack position.

A TURKEY FEEDER is shifted with a hook in a tenth the time it took with chains.



A HARVESTER chops and elevates windrowed hay. It will be blown into the loft.

UNLOADING WAGONS do away with scoop shovel work and save damage to the self feeder.

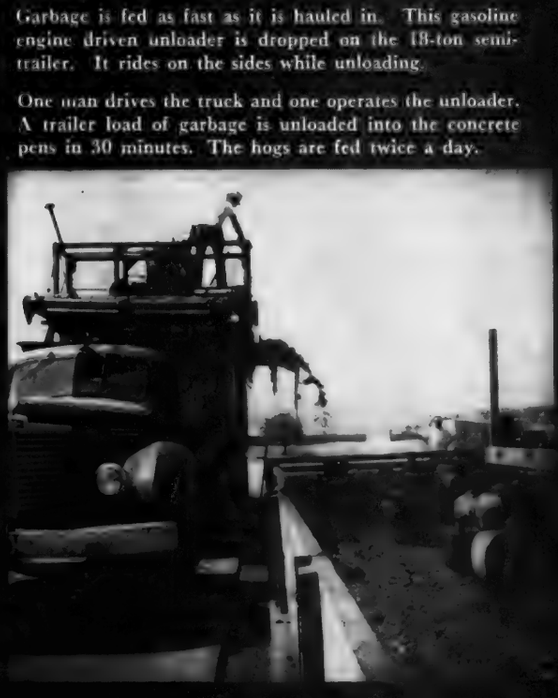
Garbage Fed Hogs

Garbage is the food you didn't eat yesterday. Hogs take to it and grow fat. To stop the spread of V. E. garbage cooking laws will be enforced.

Los Angeles County has some of the biggest garbage feeding operations in the country. This is the farrowing house on R. G. Saltonstall's 10,000 hog operation.

Garbage is fed as fast as it is hauled in. This gasoline engine driven unloader is dropped on the 18-ton semi-trailer. It rides on the sides while unloading.

One man drives the truck and one operates the unloader. A trailer load of garbage is unloaded into the concrete pens in 30 minutes. The hogs are fed twice a day.



By Al Haller

One hog out of 35 is fattened on garbage and most hog men grossing $50,000 a year are garbage feeders. Of the total U. S. swine population of 56½ million, approximately 35 million are being fattened. Of these fattening hogs over a million are now being fed out on garbage. Yet, over the last three years it has been nip and tuck as to whether garbage feeding could continue as a business, for it has been pretty well nailed down that one of the ways of getting the dangerous disease, Vesicular Exanthema, into a herd of hogs is by feeding raw garbage.

It is not difficult to understand the attraction of garbage feeding. A farmer can buy his hog feed for around $2 a ton; hogs fed on garbage under the proper conditions are healthy and their flesh is nutritious. But V. E. (the abbreviation by which the disease is known) isn't worth the price of cheap feed.

To control V. E. one state after another erected barriers against imports or exports of *any kind of hogs* until they had licked it within their own borders. This naturally set hog breeders and grain feeders violently against the garbage feeders.

With the knowledge that cooked garbage killed the virus that cause V. E., 41 states have passed laws outlawing the feeding of raw garbage. As the matter stands now, cooked garbage is not uniformly fed in the states where the law says it shall be, because the law is not properly enforced. But the state laws on cooking garbage will be enforced. The U. S. Department of Agriculture V. E. eradication program will enforce the regulations on interstate shipment. The prodding will be done by Dr. F. J. Mulhern of the USDA, who is in charge of it.

Garbage cooking is in its infancy and up to now very little has been done to give the information to the big garbage feeders —the men who feed 2000, 5000, and 10,000 hogs. Big mechanical equipment is being developed; steam generators and special garbage hauling truck bodies with built-in steam pipes will soon be available. Portable steam generators like the "Hypressure Jenny," made in Coraopolis, Pa., will be useful on farms.

The basic change in garbage feeding that law enforcement will bring, is the cooking and improved sanitation; the rest of the business stays the same. Out in California garbage feeding accounts for 40 per cent of the hog production.

If you drive up Route 99 from Los Angeles for 38 miles to Saugus, you find yourself right in the center of Los Angeles County's hog producing area. Hog pens are set on the slopes of the dry, lion-brown San Gabriel Mountains. Here a big percentage of the County's 80,000 hogs are farrowed and fed out to 215 pounds. One of the biggest producers is R. G. Saltonstall, who has some 10,000 purebred Hampshire mouths to feed on his Plum Canyon ranch. Saltonstall's restless energy has developed an operation that is highly efficient, sanitary, and a money maker. In his middle-forties, he lays claim to no particular mechanical ability; he describes himself as a farm boy who came back to farming after a number of years spent touring the country as a trumpet player in Buddy Roger's band.

Saltonstall can give just about any information you want about his own operation, so we fired the questions most hog men want answered about garbage feeding at him.

Where do you get your garbage and what does it cost?

"All garbage in this area is divided into combustible and non-combustible. We want only the non-combustible, of course, and we bid on the number of tons that we can use. Since Los Angeles County housewives and restaurants produce — or I should say throw away—1700 tons daily, you can see there is a lot to haul away. That's why this is a good garbage feeding location. Our bid is on a sliding scale, based on hog prices. With hogs at 24 cents, we pay $2.00 a ton for it. If the price on hogs drops to 22 cents, we pay $1.75 for garbage, and at 20 cents we pay $1.50. And if you think that's all feed, take a look at that Ford tractor over there scraping up the glass and paper out of the pens. We get coke bottles, sardine cans, spoons, razor blades along with the best part of vegetables, the skins and tops, meat scraps, bread, and even money rolled up in newspapers for safe keeping. It costs us another $2.00 a ton to haul

AUREOMYCIN is given all the new-born pigs at the Saltonstall Ranch, a 2cc dose the first day and the same on the second day.

the garbage from the collection stations to the ranch and feed it. There isn't much difference between home and restaurant garbage, in protein value. There is more swill in the restaurant garbage, though, because they throw more soup away."

How do you remove the glass and tin before you feed the garbage to the hogs?

"We don't. I've never seen a hog sick from glass or bottle caps. We feed the stuff right out of the 18 ton semi-trailers that we haul it here in, and as soon as it gets here. After the hogs eat what they want off the concrete floor of the feed pen, we scrape it off. We find some silverware, but most of the left-over is a mixture of citrus rinds, paper, tin, glass and manure. We haul this stuff out in dump trucks and use it for fill, over back in a side canyon. We thought some of sacking it up and selling it for fertilizer down in the San Fernando Valley, but the labor costs of separating the junk from the manure and handling seemed too high for us to try to compete with other fertilizers."

What does it cost to produce 100 pounds of pork by garbage feeding?

"Well, to start off with, we figure it takes, roughly, two tons of garbage to produce 100 pounds of meat and that costs us $8.00 now, dumped into the pens. It takes 2½ man hours to produce 100 pounds of pork. That looks good, but if we go back to the time that the pigs are weaned at 20 to 25 pounds and taken out of the farrowing house, it's a different story. At that point, we figure we've got 60 man hours in every 100 pounds of pigs. Farrowing and raising the pigs is still a time-consuming job and it is the period when we have our death losses. Feeding them out is mechanized and very efficient. I'm not able to say what figure we can assign to labor, depreciation, and overhead this year for our new mechanical unloader has cut our costs way down. We have $350,000 invested in this outfit without the hogs. That includes 9, 18-ton semi-trailers and 4 International 145 hp tractors and the ranch tractors and equipment. We hire 12 men and 2 supervisors, and furnish houses to all of them."

Where do you ship your hogs?

"Ours go to the Los Angeles stockyards. Who buys them I wouldn't know. The big packers say they don't buy garbage-fed hogs. Someone buys them, though, because we sell over 1,600,000 pounds of pork a year. As far as I know we get the average price for our hogs, or maybe a little more. Garbage-fed hogs aren't discriminated against price-wise in this market. In some parts of the country the serum plants buy the garbage-fed hogs. They like them because they can stand the shock of repeated tail-cuttings-off and the repeated loss of blood. They get lots of antibiotics in garbage and all of those vegetable peelings and tops are loaded with vitamins."

Where do you get the pigs to feed out?

"We raise them. We carry about 1200 brood sows the year around. Every hog on the place is a purebred Hampshire, although they are not all registered. We usually cut in about 60 gilts a month. We get two farrowings a year from each sow. I buy 60 purebred boars a year when I go back east. They come from the best breeders in Indiana, Ohio, Illinois, Iowa, and the rest of the hog states. These boars get full use for a year and then I sell them to some of the other California breeders who don't have so many sows to breed. We keep 54 boars in service all of the time. I rarely sell any pigs, but I do buy some, if the price is right."

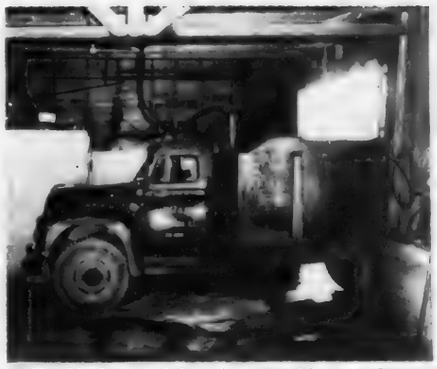
What age do you start feeding garbage to the pigs?

"They get garbage as soon as they feel like eating it. The sows are fed garbage right along and the little pigs come out of their house and see their mother eating. In a couple of days they start to nibble on it. Our schedule for raising our pigs goes like this: During the gestation period the sow gets one pound a day of our own supplement formula which we have made up into pellets. It is 48 per cent barley, steamed, rolled and ground. That is the grain we use out here; it's good feed, too, for we find that it is 78 per cent assimilated by hogs. The other 52 per cent is made up of fish meal and dehydrated alfalfa stems (17 per cent protein). To this is added our own mineral mixture, which contains bone meal, salt, and a small amount of anise oil to whet their appetites. We add 90 grams of Aureomycin per ton of feed; this is double the amount normally used, but we feel it pays off.

"After the sow farrows, she continues to get her one pound of pellets a day, and, of course, the pigs are helping themselves by the time they are weaned. For a couple of weeks after the pigs are weaned, they continue to get the pellets—about one-quarter pound a day. Then they get no more grain, just garbage."

Okay, that sounds good so far, but how do you keep hogs healthy in the midst of this mess?

"To you it's a mess; to me it's food you were eating or should have been eating a couple of days ago. If garbage is hauled out and fed promptly, the decaying action from the enzymes hasn't gone far. Sure, there are maggots in it. They are nature's clean-up squad. We don't like them any better than any one else. You know those maggots are one of the mysteries of nature. They consume protein yet there isn't a bit of protein in them. We've had them analyzed a dozen times, to see if the last man was wrong. So where does the protein go? The only thing we can do about them is to get the



THIS IS the special garbage cooking truck body used by the Rafacz Farm near Orland Park, Illinois. Above, the steam hose is attached to the lead-in pipe near the front of the body. Coils in the bottom of the body carry the steam throughout the entire garbage area. Right, Rafacz takes a temperature reading on the garbage.

BELOW, blow-off valves get rid of water trapped in the truck's steam coils. Right, garbage is dumped on the concrete feeding platforms before the pigs are turned onto them.

garbage out here as fast as we can and feed it before the flies can lay their eggs in the garbage; that's why we cover the trailers with tarps as soon as they are loaded. I think that the garbage is a healthy feed for hogs. You'll notice that when the unloader dumps the garbage, it splatters all over the hogs' backs and bodies. We want it to do that. We never have any lice or skin trouble with these hogs. The antibiotic effect of the garbage takes care of that. Then since the animals are never on pasture, we have no worm trouble. Just as protection for the newborn pigs, they get a couple of doses of Aureomycin. We make up a solution by putting 250 mg. of crystalline Aureomycin to 30 cc of water. When a pig is one day old it gets 2cc of this solution and the next day it gets another 2cc."

How do you keep the place from smelling?

"You keep garbage-fed hogs from smelling just like you keep any other hogs from smelling—by keeping them clean. The breeze isn't exactly sweet when the unloader is tossing the garbage off into the pens. No enzyme action is pleasant to humans, but hogs like it. Ensilage doesn't smell good either, but cattle love it. After the hogs pick out what they want, we go through all of the concrete feeding slabs with a scoop loader on the front of a tractor. That stuff gets hauled away. Then we come through with a Bean sprayer with water with disinfectant in it. The 400 pounds pressure that this sprayer puts out flushes the residue away. You'll notice that all of the pens are set on the slopes on the side of this canyon. That 6 or 7 per cent grade keeps the water from standing in any holes. The sun and air out here in the desert do the rest of the disinfecting. Our operation gets a visit once or twice every week from the Los Angeles County Livestock Department field men assigned to hog operations."

There are fewer flies than we have in the loafing-rooms of dairies at home. We've got flies in the Midwest that eat Lindane and like it; what is the answer?

"Flies out here are tough, too, but this year we baited them with a new fly-killer made by California Spray Chemical Company. It's called "Vapatone" and we mix it with water and sugar, then make a trail of this all around the pens. It kills so many flies that we have to sweep them up every day. We found that the pigs were eating the dead flies in big enough quantities to make themselves sick. It's a high-powered poison and it has to be kept off the skin of anyone that is handling it."

What protection do the hogs get in winter?

"Winter? Why, the Chamber of Commerce must be losing their grip. It rarely freezes even at this altitude—we're about 1400 feet. What you see is all they get. Each pen takes care of 65 hogs or 150 pigs, depending on their size. A pen is 40 by 150 feet, and the concrete feeding slab is 40 by 12 feet; it's fenced off to keep the hogs from scattering the garbage. All the hogs have to come through the open gate to get to the garbage. The shade is the only shelter the hogs get. It's a 32 by 45 aluminum roof on posts and it is set so that half of it is used for one pen and half for the pen beside it. The little pigs and the brood sows can go into the completely enclosed brooder house."

Now we get to the question that every hog man gets asked sooner or later; what is the death loss on a big operation like this?

"Well, I'm a realist. It isn't any 1½ hogs out of a litter of 11, like they say in the magazines. Our loss throughout the year, over several years of operation has been right at 32 percent—that's from farrowing until they are sold to the packers."

(*Continued on page* 80)

By Maurice Moyal

THE BIG TREK

EACH YEAR, when the lowland pastures are dry and exhausted, the French shepherds drive their flocks from the plains near Marseille to the grassy valleys high in the Alps near the Italian border. The white, dotted line on the map above shows the route of this centuries-old sheep trail. As the flock travels high into the mountains (right) the air grows clear and crisp, and patches of snow appear. Soon the tired shepherds will reach the permanent glacial snows of the Alps. A rough stone cabin (left) clinging to the slope of the Cime du Voga is their home for the summer.

"Hou! Sies aqui? Vous esperavi!" (Hello, so you've come along? I was expecting you!) sheep-raiser, Jean Chemin, greeted us affably in Provencal as he silenced a huge devil of a sheepdog ferociously barking at us.

The shade of the pen afforded a nice rest to my eyes, tired by our progress in that burning caldron of La Crau Plain, in southeastern France. The low and sprawling structure was alive with a churning swell of greyish backs and angrily bleating heads of the sheep. Shortly, Jean Chemin and his dogs started pushing the sheep towards the back of the pen. Francois and Simon, his hired men, threw open the back gate and posted themselves on either side. As the animals crowded out, they caught the rams, billy-goats, and a few king-sized ewes and nanny-goats. While Simon held firmly each struggling animal between his legs, his mate would fasten around its neck a bell.

Only were left behind the low-grade animals—aging ewes, crippled sheep, and newborn lambkins, which were not strong enough to stand the long trek that was to take the flock, in 13 marches of about 15 miles each, from the sea-level pastures of La Crau Plain, already blighted by the drought, to the lush Alpine pasture lands on the Mercantour range, 200 miles away. Because the sheep and goats must be acclimated slowly to the freezing cold of the mountain nights, they could not be ferried there by railway.

Though the hungry flock were showing their ribs—they had turned every pebble in their search for the last blades of grass—they were still in high spirits. It seemed as though they knew that they were bound for the intoxicating freedom and succulent herbs of the 8,396 foot Cime du Voga, bordering on Italy.

Under the fiery white sun, fanning all over the pebbly moor, the happy-go-lucky animals hurried along to a nearby farmhouse, where we were to pick up a lesser flock, which their owner would entrust to Jean Chemin's care to take to the mountains. Here, we had to wait for a veterinary-surgeon to give the animals a clean bill of health. In order to avoid the spread of epidemics, each flock, before embarking upon the Alpine trek, has to undergo a strict inspection.

Suddenly, the massive gates of the farm flew open, as if under the impatient rammings of thousands of horns. Like an elemental force of nature, swirling eddies of bleating and bouncing animals rushed into the open to fraternize with our flock.

The shepherds, the farmhands and I all had to take a hand in helping the six dogs of the flock to range the various groups of riotous animals in the posts alloted them by Chief-Shepherd Bastian, the sturdy 67-year-old senior, wise in sheep ways.

In order to break the *anouges* or yearling-lambs in to the fatigue of the long trek ahead, and have the stronger animals march at their slower pace, the young were forced to take the lead, immediately after the six *floucats*, the trained rams the flock is accustomed to follow. Next came the groups of small ewes and young goats, cutting their permanent incisors; then sheep, hornless rams, and billy-goats. Lastly, the platoon of asses.

To evade the scorching heat of the day, the flock would have to walk mainly by night. At 7 p.m., on the first day of summer, we set out from the village of St. Martin de Crau, 38 miles northwest of Marseille. Bastian, our chief-shepherd, took the first of the one million steps of the long trek, a slow, plodding step the length of which was deliberately cut by half, so as to suit the sheep best.

Under the rays of the slanting sun, as the animals, enveloped by dense clouds of golden dust got slowly under way, the sounds of their bells started beating the air to the rhythm of their march. The flat, regular ringing of the jug-shaped ram's bell called the *redoun* and the asses rectangular *platello*, that seems to hit you right in the pit of the stomach, the clearer notes of the *pico* on the horses, the *sonnaioun* on the ewes, one octave higher, and the silvery laughter of the dog's tiny *clarin*, which are like sleigh bells, all attuned to a distinctive chord, enable the experts to identify a distant flock entirely by ear!

Hypnotized by this regular tam-tam of bells, which was to set the rhythm of life in the flock, much as the bugle controls the movement of an army, the 2,300 sheep and goats bounded and jostled one another, so closely packed that the head of one animal was on the croup of the fellow in front.

The enormous flow of sheep, which undulated along the back roads, was canalized by Bastian in the lead, shepherds Francois and Simon on either side, and my friend Jean Chemin, the woolgrower, in the rear. Along the edges the six dogs shuttled to and fro to prevent their charges from falling over some precipice or getting their fleece caught in some thicket.

To pick up stragglers, the woolgrower brought up the rear, driving a covered wagon drawn by a steady, untemperamental mare, trained to stop automatically as soon as the sheep showed the slightest hesitation, so as not to trample them under her feet.

To these wandering people and their animals, this wagon was a home. It carried the shepherd's supplies of food and wine, tools and implements, pots and pans, extra clothing, and, eventually, it would carry the footsore animals.

As we got under way, from the top of the Alpilles hills, the deep peace of twilight crept over the La Crau plain. From the bottoms of the last rain-pools, legions of frogs began their monotonous evening sing-song. Their two-tempo croakings sounded like the very voice of this drought-chinked, unchangeable earth.

HORSES AND DONKEYS carry the shepherds' supplies up the mountain. The dappled horse (top) sniffs at a new-born kid in the shepherd's lap. Goats are needed to lead the wandering sheep on the trek. From the carved wooden collar of the donkey (center) hangs a bell which sounds a flat note among the many bells of the goats, rams and dogs. The patient donkey carries a pack or pulls the wagon (bottom), which is the shepherd's home on wheels.

The Hardy and Frugal Sheep

The limited amount of grazing the sheep sometimes do on the sly from some peasant's meadow, and the few blades of grass they snatch from the roadside when on this long march, are not nearly sufficient to sustain them. A summer-storm, catching them with nearly empty stomachs, would mean many casualties. Now and then woolgrowers must provide their charges with a square meal off some meadow. To the farmer who owns it they must pay through the nose.

When turned onto such a pasture, our sheep would then start grazing in a single mass, all walking in the same direction. Their tongues swept the widest section of grass possible, which their thin lips and almost flat jaws, prolonged by long incisors, impatiently chiseled away. Only when the edge of their appetite had been blunted would they get more finicky and look for special tidbits, scattering away in several groups.

I noticed one or two brown fleeces in striking contrast to the greyish color of the rest of the flock. The local ancestor, so it turned out, will sometimes reassert itself in this way.

In the old, old days, the local sheep only yielded a coarse and low-grade wool. In the 18th century the experimental farm of Rambouillet, in northern France, greatly improved their wool by crossbreeding them with Merino stock, imported from Spain. At first sight you are not too certain about the part-Merino origin of these sheep, locally known as the Merino of Arles. With its medium, or even slight, build—averaging 90 pounds in weight—it is a far cry from its stockier and heavier purebred ancestor. But its fleece is undeniably a Merino feature. From the tip of its legs to its forehead, the local sheep's body is covered with a compact, homogeneous, and evenly distributed shock of fine wool, averaging 6 pounds in weight.

The Merino of Arles has thus combined the more favorable features in both parent breeds, for it has retained its local ancestor's adaptation to the hot and dry climate of south France, and its hardihood.

As we traveled onwards, our sheep were getting hardier and hardier. At dawn, they could graze with no ill effects a grass impregnated with dew, which would have been very harmful to their health in La Crau pastures. This dew quenched their thirst to such a point that, at a pinch, they could have done without a drink for a day or two. Yet, it was better for them to supplement it with two pints of water a day, from icy torrents fed by the melting snow which was ahead of us on the mountains.

It fell to the shepherd of the watch—for shepherds, like sailors, would not dream of leaving their sheep unattended

AT DAWN, THE WEARY FLOCK pours into a clearing beside the trail to rest during the heat of the day. Night travel holds down losses from overheating. The two-hundred mile journey is deliberately slow, for the flock must become accustomed to the altitude and cold.

for a single moment—to prepare our evening meal. Thus, in turn, Bastian, Jean, Francois, his brother, and Simon would kindle a big fire between two flat stones. Soon, from a big bellied kettle would come the gentle purring of boiling water. Cook would then pour into it French beans, macaroni, whole potatoes, chunks of bread soaked in olive-oil, some red wine for good measure, with a liberal besprinkling of salt, saffron and pepper. If perchance some salt missed the mark, our friends would carefully scoop it and throw it into the fire. For them, salt and bread being endowed with a sacred character, it would be a sin to allow them to be trodden upon.

In all probability, you wouldn't care for such rustic fare as that soup, with the consistency of a thick gravy. Only a ravenous appetite, the open air — and fifteen miles up steep slopes on your tired legs — could induce you to change your mind, I think! As the shepherds had had to stay at their alloted posts during the march, each walled in his loneliness, they would make up for lost time during the halts. Bastian first, Jean next, then Francois and Simon, always in that invariable order, would then minutely describe some small incident or other that had occurred along the way. Marcel and I would take part in the conversation only when invited, and this, briefly. Cemented by those strong and heart-warming bonds that a common task soon weaves between human beings, we would all attentively listen to the speaker, while methodically chewing half a loaf with rashers of bacon, and, in the way of "amuse-gueule", a goodly chunk of "matarasso" or codfish, slowly roasted, like chestnuts, under the ashes of the hearth. For love or money, Marcel and I were unable to persuade our friends to eat either fresh vegetables or fruit. Invariably, they would tell us that such green stuff would loosen their bowels along the next stretch and thus interfere with their ceaseless watch over the flock.

As the road steadily climbed, we passed from Lower Provence into the area of the Alps proper at the pass of Mirabeau. Though it was still hot, the heat had lost its pricklyness. The sky overhead did not any longer resemble the harsh, unalterable enamel blue bowl over the lowlands. It was of a tender blue, deeply moving, for you felt it was at the mercy of the clouds. From white, the light had turned to gold, and even the air seemed more fluid.

Occasionally the sheep scattered. Their pattern continually changed according to

(Continued on page 84)

Johnson Grass

Friend or Foe

"WHAT other crop can a man have that he can use for grazing, for silage, for hay, for seed, or any combination of these; that he can cuss, fight, provide winter grazing in with small grains and a fall seeded legume, and still have the next summer?" That's the attitude of a typical mid-Texas stockman toward Johnson grass. And while the grass is cussed and fought more than it is cropped in those sections where it takes over cotton and corn fields, the Texan's statement pretty well sums up the pros and cons for this immigrant from the Nile.

In some places, notably Tennessee and California, there is a price on its head. In the Volunteer state practically all traffic in Johnson grass is prohibited by a law that forbids any person to bring the plants or seeds into the state, or to sell, offer for sale, or give away any seeds or plants of Johnson grass. A California law makes it an offense in certain counties for any one to permit Johnson grass to "mature and disseminate its seed."

Yet, throughout the livestock sections of the South and in other parts of the nation where livestock predominates, Johnson grass is coming to be called "the king of grasses," and cattlemen like Kirtley Brown, of Hamburg, Alabama, are praising it as "a God-send, our best hay crop."

Johnson grass is a sorghum—the botanists refer to it as *Sorghum halepense*—but it differs from all other sorghums in that it is a perennial that spreads by vigorous underground stems or rhizomes as well as by seed. It is the rhizomes that make it such a difficult pest to eradicate once it gets a stand, while at the same time they make it an ideal plant for retarding soil erosion. It grows from three to seven or eight feet high and properly managed will produce two or three cuttings of hay in a season, yielding from one to better than six tons to the acre, depending upon the fertility of the land.

JOHNSON GRASS IS A SCOURGE on cropland, but for mid-summer pasture it is hard to beat. Earl Simmonds (opposite) explains to daughter Kay how the grass propagates itself from the rhizomes in his hand as well as the seeds above his head.

A Little History

Known also as Means grass and Egyptian sugar cane, Johnson grass has grown in this country for just about 100 years now. A few years before the Civil War, so the story goes, Captain Means, a South Carolina seafaring man, and later governor of the state, brought a variety of seeds with him on his return from a trip to the Mediterranean lands. Among these was a spoonful of strange seeds which he gave to a friend to try in his garden. The friend sowed them and found that they produced a grass of luxuriant growth that soon crowded out all the rest of his plants. That was enough for him. He tore up the grass by the roots and threw it into a nearby gulley. But that wasn't the end of the grass. It wasn't long before it had completely conquered the gulley and then it was noticed that cattle found the tall-growing stuff very palatable. That was all that was needed to establish its popularity over the entire state.

Around 1860 Captain Johnson of Marion Junction, Alabama, paid a visit to some relatives in South Carolina. He saw some good stands of the recently imported grass, which by now was a Carolina sensation, liked what he saw, and took some seed home with him.

Then came the War. Captain Johnson was killed in the Confederate service. His two small daughters were sent to a school at Tuscaloosa after a guardian was appointed for them. In an effort to find a means of support for his wards, the guardian made a careful inspection of the plantation at Marion Junction. Here he found the typical post-war plantation, deserted, unrented, uncared for. But instead of the usual dismal growth of weeds and brush in the neglected cotton fields, the place was blanketed with a rich growth of the grass from Carolina.

The guardian immediately realized that his wards had fallen heir to an unusually valuable piece of land. He advertised it for rent as a stock farm and soon leased it to some gentlemen from Nashville, who moved in a battery of baling presses and went to work cutting and

(*Continued on page* 89)

VEGETABLES as a Field Crop

By George Laycock

A GREEN THUMB in the family garden won't insure success in growing vegetables on a field scale. It's one thing to grow good garden crops and still another to grow the same crops profitably over several acres.

Farmers who have the right combination of climate, soil, markets and available help have found vegetables to be a specialty which can increase their farm income without upsetting their overall farm plan. A field of tomatoes, peas, carrots or beans may help keep the record book showing black marks in the profit-and-loss column. But before you start collecting vegetable seed and counting your unmade coin it's a good plan to back off and take a careful look at the problems involved.

The farmers who do a good job with other field crops will probably do a good job with vegetables. "The man we like to line up to grow tomatoes for us," says Von Jones of the Greenville (Ohio) Canning Company, "is one who grows 100-bushel corn. The farmer who does a poor job with his other crops will seldom be a first-rate producer of canning crops."

Two major points to check when you start thinking of growing vegetables commercially are your markets and your soil. Most vegetables need fertile soils. Check the suitability of your soils with other growers in the region and with your county agent. Then check up to see if there's a canner within a radius of 25 or 30 miles who can use a new grower under contract.

Or, there's the possibility of selling vegetables on the fresh market. This is a more exacting business and one that doesn't fit as neatly into general farming as does the growing of canning crops. Canners usually sign growers to a contract that guarantees a fixed price at harvest, but the market produce grower takes all the risk himself. That is why fresh vegetable production is a specialty business in itself and with its exacting demands on labor, machinery and irrigation equipment, is usually limited to farms that produce little else.

So let's limit the discussion here to field production of canning crops. Most of these, including tomatoes, peas and beans, can be grown with general farm equipment. It is wise to find out from the canner if he supplies labor at harvest season.

Tomatoes By The Acre

In recent years the tomato, the poor man's orange, rich in vitamins A and C, has become an increasingly attractive crop for the general farmer. Tomatoes are more profitable than corn and the demand for them continues to grow.

Farmers who grow tomatoes in their fields year after year develop a liking for them. For instance, there is Wallace Warstler, who for the past 26 years has grown canning tomatoes on his Randolph County, Indiana, farm. "They're a good crop," he says. "Tomato growers are far better off today than they were 20 years ago. Now we have sprays to fight disease; we used to just let them go and never spray 'em."

HERE ARE TWO WAYS to get vegetables off to an early start, with hot caps and hot beds. On the fresh vegetable market the grower who can beat his competition by a week can get twice as much for his produce.

Every year tomato producers like Warstler grow three million tons of such varieties as Rutgers, Marglobe, Indiana Baltimore and Early Baltimore. This canning crop is worth $75,000,000 and covers a half million acres. California leads the parade, with Indiana second, followed by Maryland, New Jersey, Ohio, New York, Pennsylvania, Virginia, Utah, Illinois, Delaware, Texas, Michigan, Arkansas, Missouri, and Colorado. California grows about a third of all the processing tomatoes. Her native sons will tell you their tomatoes grow so thick they have to rent adjoining fields for space to set the filled hampers at harvest time.

Tomatoes are a demanding crop and you'll not produce them profitably unless you're blessed with a fertile soil. It must be deep and well drained and high in humus content. To keep humus high the tomato grower spreads what manure he has available and relies heavily on plant refuse that he can turn back into the soil. The manure he uses is not spread especially for the tomato crop because he is fertilizing a whole rotation, not a single cash crop. A poorly drained soil may kill the plants, especially if the field is flooded even for a short time as the plants mature. Largest yields come from heavy soils which hold fertilizer better and don't get as dry in the dry seasons. The soil should be sweet enough to grow alfalfa or sweet clover.

"If you can't hire picking labor," says Warstler, "better stick to a small acreage, say five or ten acres, or what can be handled by the regular labor on the place." Harvesting tomatoes is about half of the cost of production. Warstler grows about 20 acres a year for the canning plant at Saratoga, Indiana. This year he had 33 acres.

But the average tomato grower has a smaller field than Warstler's. In the 12 major tomato-producing counties in Ohio the average grower planted 5.29 acres. This size planting can be easily picked and hauled by a farmer and one helper. Tomatoes should be picked once a week and

since two men can do about an acre a day a field this size can be covered in a week. Picking comes at a slack time between haying and corn harvest and is finished with the first frost.

Warstler starts planning his tomato crop about the first of the year. That's when the cannery lines up its growers for the season. The contract Warstler signs tells him what price he'll get for each grade of tomatoes at harvest time and what services the cannery offers him during the season. He knows a company field man will show up if he needs help with insects, disease or other problems during the season.

Warstler buys his own plants and fertilizer and bears the cost of production. He rents a plant setter from the company, which rules out the need to buy additional machinery for tomatoes. What his profit on the crop will be depends largely on how well he does his job and how lucky he is with the weather.

Warstler has his rotation set up to take a field of tomatoes every four years and his rotation runs corn, tomatoes, wheat and clover. Where tomatoes follow sod crops and erosion is no hazard, plowing should be done in the fall to give organic matter time to break down.

"Your seedbed has to be in good shape for tomatoes," says Warstler. "There's no two ways about it—you need a good deep seedbed with no clods." He works his tomato land with the same machinery he uses for corn land and is careful to do his plowing at the right time. Tomato land should be plowed about eight inches deep. Fields that have developed a plowsole can be improved with a subsoiler that cracks the hardpan but doesn't bring it to the surface. Tomato roots need growing room and well-areated soils.

Warstler's tomato plants, like those set by most commercial growers, come out of the South, usually Georgia or Tennessee, where they get an early start in spring seedbeds. They're shipped in by the cannery and sold to farmers at $5.50 a thousand. Last year Warstler's plants for 33 acres cost him $775. "I like for them to be about six inches high," he says, "but height isn't as important as having a sturdy plant. It needs a good strong root and stem."

He rents a plant setter from the cannery for a dollar an acre. He sets the plants 42 inches apart in 42-inch rows. Last summer he planted 33 acres with two, two-row planters in two and a half days. A few growers are trying wider rows and finding that even with rows up to five feet wide yields stay up while cultivating machinery does less damage to plants and pickers have it easier at harvest.

"When I'm getting the field ready for planting," says Warstler, "I like to work it right ahead of the plant setter to keep the ground in good shape and keep moisture close to the surface." His final seedbed working consists of harrowing and leveling until the field is smooth and weeds are all eliminated.

Transplanting should be done on a still or cloudy day and plants shouldn't be left in the sun or wind before planting. The roots should be kept moistened. The plant setters carry water tanks and dump a half pint of water on the roots of each plant as it goes into the ground. This is especially important during dry planting seasons.

The research people agree that it's a good plan to give tomato plants a head start with a starter solution instead of a plain drink of water. For this, put on a half pint per plant of a solution of five pounds of 13—26—13 fertilizer or its equivalent, in 100 gallons of water. The starter solution usually brings fruit a week earlier and increases total yield.

Some growers by-pass the transplanting by seeding tomatoes right in the field. These plants develop deeper root systems and seem to withstand dry weather better than transplants. They also produce higher grade fruit, but it comes later in the season. Seeds are drilled one or two inches apart and about a half inch deep. Plants have to be thinned when they're four inches high and this is a labor-consuming job which has discouraged many a tomato grower. The actual cost of producing tomatoes with either method is about the same.

The cost of tomato growing varies with the fertilizer needs and the custom work hired, but for a 10-ton crop the out-of-pocket costs on an acre of tomatoes might look about like this:

Plants ($5.50 per 1000)	$ 23.00
Fertilizer	30.00
Planter rental	1.00
Custom spraying (five times)	10.00
Picking (10 tons)	68.00
Total	$132.00

If he sells at $30 a ton his gross on a 10-ton crop will come to $300 and subtracting the above costs he'll have $168 left, from which he must still subtract the cost of his own time, machinery and fuel. Warstler expects in an average year to clear $150 to $160 an acre of tomatoes.

If you want to produce your own plants, as do those who grow tomatoes for the fresh markets, you can start them in cold frames, hothouses, or small plant trays. For every acre of tomatoes you expect to plant you should plant an ounce of seed about two months before the safe planting date in the field. Get an early-maturing variety, especially if you plan to sell fresh fruit. Fill the plant beds with six inches of fertile, well-composted soil a week before planting.

Mark the rows six inches apart with the edge of a board. The rows should be three inches wide and a half inch deep. Plant the seed at the rate of about 100 seeds per one foot of row. At this rate an ounce of seed should plant 40 square feet of bed space. Cover the seed with a half inch of soil and give it a light watering. Plants should come through in five days if beds are kept at 70 degrees.

"If you don't want to use a lot of fertilizer," says Warstler, "don't try growing tomatoes." You'll profit from applications of 600 to 800 pounds per acre and up to 1,000 pounds on fertile soils in good physical condition. The fertilizer needed varies from field to field and should be in keeping with a soil test. Extension horticulturist A. C. Moll of Ohio State University suggests a 3—12—12 for highly fertile, well-manured soils with high nitrogen content. For most fields in general rotation a 5—10—10 will be about right and if there is a lot of corn stover or other plant material to break down, switch to an 8—8—8.

On soils that are well drained and high in organic matter the fertilizer should be broadcast before plowing. Where soils are low on organic matter it's best to deep drill fertilizer after the land is fitted. You'll get the least from your fertilizer dollar by broadcasting after the land is fitted. And, so far, the experimental work shows that foliage application of plant food on tomatoes isn't a good idea unless you're correcting a manganese deficiency. This calls for six to eight pounds of manganese sulfate in 100 gallons of water per acre.

As is true for most crops, the main reason for cultivating tomatoes is to keep weeds down. This is best done early in the season. Warstler says: "I like to cultivate mine the first time just a few days after they're set in the field, and after that every 10 days or so. The last cultivation comes not later than the first setting of fruit. That's as late as you can possibly plow 'em." They should be plowed shallow, an inch or two deep. As the season gets along they should be plowed shallower and farther from the plants to protect the feeder roots which spread out close to the surface all over the field.

The time has passed when the tomato grower lets diseases take what fruit they will and leave the rest for harvest. Warstler, like most growers, sprays his tomatoes five times during the season to keep fungus diseases down. These attack both the foliage and fruit. They include septoria leaf spot, and early blight, which causes defoliation; late blight, which destroys both foliage and fruit; and anthracnose, which is fruit rot. Here is one schedule of sprays used to fight these diseases:

SPRAY	TIME	CHEMICAL
1st spray	when 1st fruit cluster is ½ grown	Zerlate (10%)
2nd spray	wk. to 10 days later	Copper
3rd spray	" " "	Zerlate
4th spray	" " "	Copper
5th spray	" " "	Zerlate

Tomato Insects

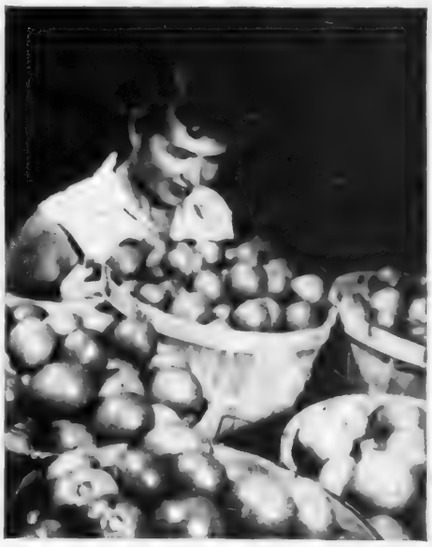
There is a whole team of insects which, on occasion, may try to take over the

tomato patch, and for each there's an antidote. Here are some of the frequently used treatments for common tomato insects: for flea beetles which may attack young plants in the beds, treat with one percent rotenone or a three percent DDT dust. For hornworms, spray with four pounds of calcium or lead arsenate per 100 gallons of water. To knock out aphids, dust with three percent nicotine, or spray with one pound of 15 percent parathion per 100 gallons of water. For the cutworms, which may attack the newly set plants in May and June, use a five percent DDT or chlorodane mixture around the plants at the rate of 50 pounds per acre.

The pay off for all this comes in late summer when the first of the tomato crop ripens. Warstler picked his first crop on August 12th last year. Pickers were sent in by the canner but paid by Warstler. The job took two days for 16 pickers. "They did a fine job of it," says Warstler, "and I hope I get the same crew back next year. We have to pick 'em once a week until frost comes." Supervising the picking is important and not always easy. "I don't think any two pickers see tomatoes quite the same," says Warstler. "One that's ripe to one person looks too green to another. And if they're picked too green they fall into grade two. The ideal canning tomato is red ripe and firm without cracks and without any bumps or deformities." For the first two or three pickings the pickers have to be especially careful of the vines for the grower wants them to stay green right up to frost.

Canning tomatoes fall in three grades, one, two, and culls. Culls are worthless and are left in the field. If they are cracked or too green or deformed they're twos. A load that's 85 percent number

(*Continued on page* 126)



AS A FIELD CROP, vegetables require all the willing hands that can be assembled at harvest time. A garden tractor, right, spares the farm tractor for other work. In most parts of the country a fall planting can be made after the early vegetables are picked.

Check Their Weights

By Neil K. Holbrook

Farming without a set of scales is a game of blindman's bluff

IN THE Book of Proverbs it is written, *A false balance is an abomination to the Lord; but a just weight is His delight.* Farmers who sell livestock by estimating their weight, who mix feed formulas by guess, who calculate an animal's rate of gain on feed by a pat on the rump, and who always take the seller's word for the amount of feed and supplies delivered should take another look at the Bible.

Take, for example, Lon Stuart, who owns a 500-acre cattle ranch west of Colorado Springs, Colorado. Last September he sold 10 head of range steers to a commercial feeder. Together he and the buyer walked among the animals, probing them with a cane, feeling their loins, observing their head and hind quarters—everything but weighing the animals.

"I can give you four hundred and eighty-five for the lot," said the buyer. "But no more!"

"Sold," said Lon, feeling a little satisfied at having finished his job.

The buyer loaded the animals and drove to a public scale in Colorado Springs to check his estimated weights. He had guessed about 5100 pounds for the 10 animals, and they checked out almost to the pound. He got the animals for about 9½ cents a pound.

The next Saturday when Stuart went into town, he managed to find out what his animals weighed. He figured he lost nearly $40 on each steer at the going rate.

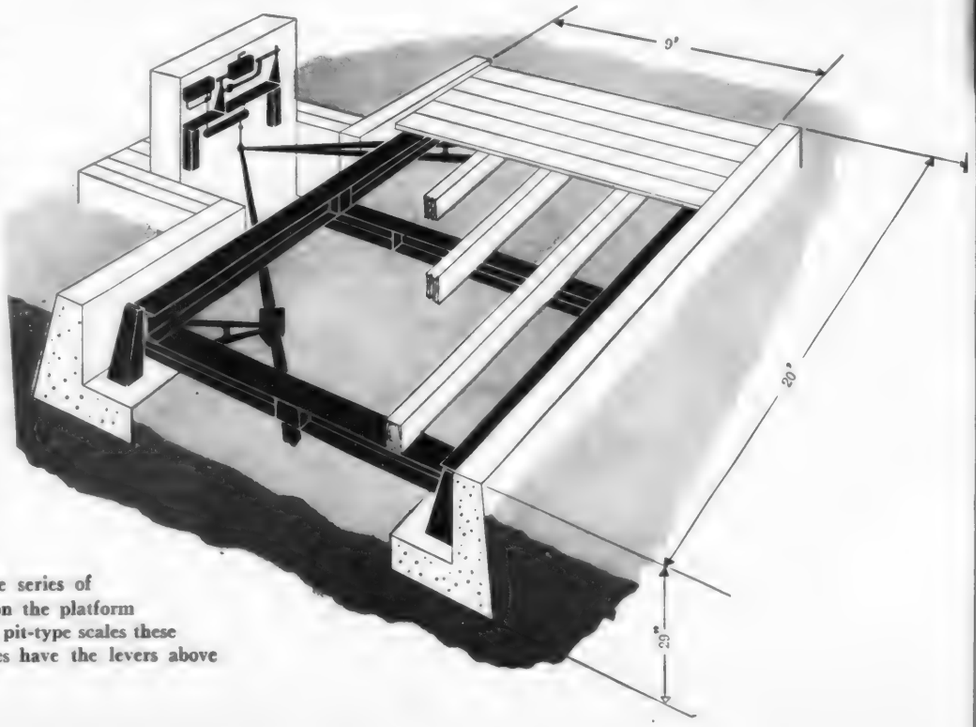
"I got right restless about that deal, but a deal is a deal, and I figure a fellow hasn't got a right to kick when he goes into a weight guessing contest," he said.

Stuart agreed that a false balance is an abomination and bought a livestock scale for $425, nearly the amount he lost on the one deal in September. It was a pitless type of platform scale made by Fairbanks, Morse & Company, weighing loads up to five tons. "I have a feeling," he said, "that this scale will pay for itself in six months—not much longer, anyway. At today's prices the scale makes me sad because now I know exactly how much money I am losing on my cattle," he chuckled. "Even with low cattle prices, I am saving quite a bit of money by checking feed and grain loads, and by weighing my animals to check their rate of gain," he said, glancing toward his feedlot.

On the farm, scales are more useful as a tool than to check careless or dishonest persons. Probably the most popular scale on any farm is the small "milk and poultry" scale with a platform or sometimes just a hook on which you hang the item to be weighed. Lorenzo Haderlee, one of California's top dairymen with a 1952 herd average of 594.1 pounds of butterfat, had a herd average of 273 pounds when he first started weighing his milk in 1941. "I couldn't operate my farm without a set of scales," Haderlee insists. He claims that a $7 scale has netted him thousands of dollars in the last 10 years in helping him cull his herd.

These small milk and poultry scales weigh loads up to 30 or 40 pounds and cost you from $8 to $12. With the capacity to register weights as little as one-tenth of a pound, these scales will lose their accuracy in one or two years and must be replaced. Used for weighing milk, chickens, produce, feed, etc., these scales, of course, won't handle the big jobs. They are commonly used around the house, dairy barn, or chicken coops.

The pasture and roughage program of Ralph Wilcox of Carrol County, Indiana, is geared to the daily gains made by his steers. Without a set of scales he would



THE GUTS OF A SET OF SCALES are the series of levers which make it possible to balance tons on the platform with a two-pound weight on the beam. With the pit-type scales these levers are below ground level; the pitless scales have the levers above ground and a ramp is built up to the platform.

WEIGHING THE FEED on the farm scales and checking the livestock growth gives the rate of gain and insures feeding efficiency. This set of scales has a device for printing the weight of each load on a ticket for easy record keeping.

be lost. Each fall he buys around 50 head of western steers weighing between 400 and 500 pounds. He lets them glean his corn fields in late fall and roughs them through the winter on a minimum of corn and hay. In the spring he gets them out onto the best pasture his land will produce and may sell them as grass-fattened cattle or finish them off with a couple of months on corn and pasture. "With this program," Wilcox said, "the rate of gain on the different rations is a critical factor. In the winter they should be gaining between a half and three-quarters of a pound a day. If they are gaining less than a half I should be feeding them more than I am. If they are gaining over three-quarters of a pound I'm wasting feed on this program and should cut them down. Come spring and good pastures and they should jump to two or even two and a half pounds gain a day—that's where I make my money. If they don't do it, something's wrong with them or with my pastures and I ought to know about it right now. There's only one way in the world to keep track of this sort of thing and that is by running your animals over a set of scales regularly. I try to weigh them once a month. I'd say that my pit scales are about the most important tool on the farm."

Some people build their entire reputation around a set of scales. For example, Charles Haigler, of Washington Court House, Ohio, sells production tested Herefords. He weighs every purebred calf at birth, weaning time, and every 30 days for a 155-day feeding period.

"My entire selling program is based on showing the buyer that good, fast growth is inherent in my beef animals," he says. Haigler's sales literature contains all the weight data on the animals for sale. And his prices are based on the animal's ability to grow rapidly and, in his opinion, the ability to transmit this growth factor.

Although Haigler's scale is a pitless scale which he frequently tests for accuracy, no single scale will do all the jobs on a diversified farm, he says. Clarence Allred of Marshall County, West Virginia, owns three scales, and says, "I wouldn't part with any of them—unless I could get a new one." His smallest scale is a poultry and egg scale. Then he has a small port-

(*Continued on page* 139)

The Charbray

The Charolaise, a fine French beef breed, crossed with the Brahman, produces a heavy, fast-growing animal

By Bill Rivers

In the cattlemen's arena, where the purebreds and the crosses carry on their running battle for supremacy, there is a new contestant, the Charbray, a relatively recent cross between the Indian Brahman and the French Charolaise.

Brahman crosses are not new: in fact, the Brahman has had a slice of about every important cross since the turn of the century. The Santa Gertrudis and Beefmaster are fixed crosses and well-established. Less well-known are the Braford, the Brangus, and such odd ones as the Brahmalo, which is Brahman and Buffalo.

When the prepotent and rugged Brahman was crossed with the Charolaise, one of the finest beef breeds on the European continent, cattlemen knew that here was a challenger for the mighty Santa Gertrudis, king of all the Brahman crosses. Charbray devotees say that their breed will take second place to no other Brahman cross, and they back up their statement with impressive figures on performance.

The Charolaise

The Charolaise (spelled Charolais by the French) came to the States via Mexico. The breed originated in central France in the province of Charolais during the early 18th century. It was bred for beef as well as work. Since draft animals in France are ultimately consumed for meat, the quality of its flesh was an important factor in its breeding.

In a country where feed grains are scarce, the Charolaise was bred to fatten on pasture, and the ability of the cow to supply plentiful milk for the calf was important. The breed was never regarded as a dual purpose animal (milk and meat) as the French Normandy was, but was bred for beef and work from the start.

Since there was a ban on direct importation from the Continent, the Charolaise were sent to Mexico in 1920 and were brought into the States from there, principally through the efforts of Fred W. Turner, of Weslaco, Texas, and Harl Thomas, of Raymondville, Texas. Other American breeders who saw the possibilities of the Charolaise were the King Ranch of Texas, Winston Guest of Virginia, and Joe Pate and C. M. Frost of Texas.

The Charolaise is a well-proportioned animal, but the legs are longer than Shorthorn, Angus, and Hereford breeders regard as practical. The hide is white, back straight, and its muscles bulging and full formed. It is horned, and has a gentle, calm disposition.

Its chief characteristics as a beef producer, so its breeders say, is its rapidity of growth, ease of finishing, high dressing percentage, flavor and quality of flesh, and its high gain-per-day potential in the feedlot. It will fatten easily and fully at any age. The meat is interlaced with fat more than the English breeds, and the fat beneath the skin is less.

Cows generally run from 1600 to 1800 lbs.; bulls from 2,200 to 2,700 lbs. Individual cows may go to a ton and over; bulls to 3,000 lbs. and over.

The cattle are good rustlers, will do well under adverse weather conditions, and are especially fast growers.

Harold Hunt, of El Centro, California, like many Charolaise breeders, does not hesitate to use superlatives. He says, "From the viewpoint of rapidity in breeding and fattening, Charolaise cattle are the foremost of all breeds, including the best strains of Shorthorn cattle, because they can be fattened very completely at any age. The quality of meat also places Charolaise cattle in the first rank.

"Animals fattened in the pasture or on the range show firm flesh, covered by fat, that leaves nothing to be desired. The muscles are penetrated with fat to the thinnest fibers, giving the meat the 'persille' marbling, which distinguishes good quality meats and gives to French cooking its world-wide reputation. The flesh is of a tenderness, savoriness, and fineness that cannot be surpassed."

Perhaps even more important to most cattlemen who are well aware a beef animal isn't all beef, is Hunt's comment on the yield from Charolaise:

"The net yield (dressed weight) of meat, unsurpassed by any other breed of cattle, is 60 per cent in ordinary cases and has reached 68 per cent in select animals, well fattened."

Pursuing the important economic angle still further, Hunt says, "The thick, supple hides yield leather of the finest quality, greatly sought after by the tanneries. A steer of 2,200 pounds gives about 132 pounds of green hide, and a cow of 1,540 pounds produces a hide weighing 88 pounds. The milk qualities of the Charolaise, although secondary, are important. Cows produce three to four gallons of milk during the first months after calving. This will raise calves rapidly, when they are on pasture with their dams.

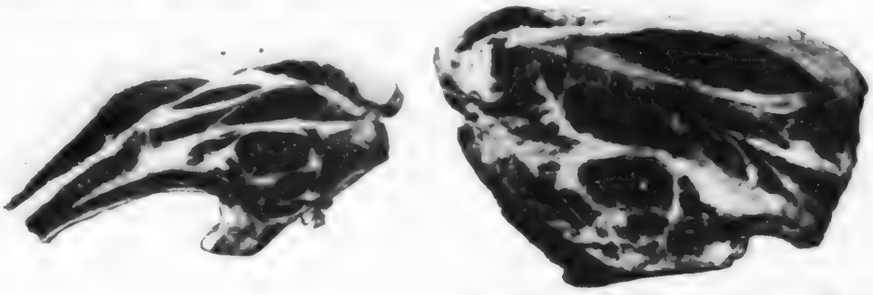
Charolaise X Brahman

The Charolaise is a prepotent animal, transmitting its white color, conformation, ability to fatten at any age, abundant milk, and quality of flesh to its progeny when mated to other breeds. The Charbray has hybrid vigor which comes with crossing.

The Brahman, also a prepotent animal, contributes high resistance to heat and insects, immunity to cancer eye, pink eye, and other diseases, and ruggedness. The Charolaise's gentle disposition tones down the temperamental Brahman. The Charbray has size and strength, but is not inclined to throw his weight around.

Both the Charolaise and Brahman are fast growers as calves. Breeders report calves weighing 650 lbs. at 6 months, and 850 at 8 months. Dr. C. H. Langford, of Bandera, Texas, a Charbray breeder, says, "Charbray bulls will increase the weight of calves from any type cows from 100 to 200 pounds at weaning time. And this extra weight may well mean the margin of profit for the rancher.

PUREBRED CHAROLAISE BULL owned by a Florida cattleman. He weighs 2800 pounds. There have been no Charolaise cattle imported directly from France. A few have come in via Mexico.



A CHARBRAY BULL (below) owned by Harl R. Thomas, Raymondville, Texas. He is coming four years old and weighs 2,240 pounds. Above left is a cut of English breed beef; right, is the corresponding cut from a Charbray. Note interlacing fat.

The Charbray will very definitely insure you more precocious, heavier, and better-formed animals with a higher percentage of red meat yield in the shortest length of time.

"The rapid growth characteristics are even more pronounced in the Charbray than in the fast-growing Charolaise. Charbray calves put on 100 pounds a month on grass under the best conditions. They are born a light tan, bleach out to a cream white in a few weeks and just a hint of the Brahman dewlap is retained, but the sacred cow's hump is bred out."

The Brahman's ability to sweat over all its skin area is retained, even when the Brahman blood is fractional. This is true also of disease immunity and resistance to extremes of temperature.

Dressing percentage of the Charbray carcass is high. Exceptional animals will dress out better than 65 per cent. The average is around 60 per cent. The meat is interlaced with fat, full-flavored and tender. There is only a thin layer of fat beneath the hide, and very little free fat elsewhere on even a well finished animal.

The Charbray are generally well received on the market. Where they are not well-known there may be penalties for lack of covering on the carcass. In some southern and western markets they command a premium. Some buyers around Salinas, California, where there are a good many Charbray, are paying 1 to 3 cents premium.

Like the Brahman, they make their most profitable growth as calves and have not been able to establish themselves as feedlot producers in competition with the English breeds. The northern markets are educated to a well-covered carcass. Charbray breeders say the solid red meat carcass of their breed is just as tender, nutritious and flavorful as any prime beef, and there is less waste. It's a matter of educating the consumer, they say.

What Is A Charbray?

At the present time, a Charbray is any cross of the Brahman and Charolaise with at least ⅛ Brahman and not more than ¼ Brahman. At the February 13, 1953, meeting of the Board of Directors of the Association, a plan was adopted in order to secure recognition of the Charbray as a breed by the U.S.D.A. It was pointed out at that time:

1. That at the present time a Charbray is either a ¾ or ⅞ Charolaise. It should be one or the other, not both.
2. That since both ⅞ and ¾ are outstanding, a cross between them might give the desired percentage, 13/16 Charolaise—3/16 Brahman.
3. That such a program should be

(*Continued on page* 96)

LIME

Wonder Worker in the Pasture

By Aaron Baxter

"Limin' land is a lot like latherin' before shavin', you can farm without limin', same as you can shave without latherin'. But either one is a mighty tough pull." That is the way one farmer sized up liming. To get the most out of the plant foods that farmers must apply to get profitable yields, liming is a must for most crops outside of irrigated and dry farming areas.

There is a big difference of opinion as to why liming is necessary. In one camp are those who hold that liming is needed to correct acidity, or sweeten soils. In the opposite camp are those who say that lime is applied to add the plant foods, calcium, and magnesium for the crops that are to be grown. Some of the country's best agronomists argue this question bitterly, neither side giving an inch.

Actually, there is plenty of proof to show both lines of thinking are right. Liming does sweeten the soil and at the same time adds calcium and magnesium which are so vital as plant foods, especially to growing legumes. In making fertilizers pay off better by increasing crop yields, both by sweetening the soil and supplying the necessary calcium and magnesium, lime makes profits for the farmer. This is often difficult for the farmer to see, since returns are not always immediate or spectacular. However, if the soil is lime-starved, yield increases often more than pay for the lime applied in the same year.

Lime needs can best be determined by a soil test. Reports from soil tests show the pH and the amount of lime required for the crop specified. The term pH is used to show that a soil is acid (sour), neutral, or alkaline (sweet). A neutral soil has a pH of 7. Acid soils may have a pH as low as 4. Soils from alkaline areas in the west may have a pH as high as 10.

In taking a soil sample for testing it is important to remember that your soil test can be no better than your soil sample. A cross-section sample of each field should be taken. Not all soils need liming and, without a good sample, considerable harm can be done by over-liming.

THIS North Carolina farmer had such dramatic proof of the effect of liming on the soy beans held in his right hand, compared to those from the same field that had no lime, that he asked to have his picture taken with them.

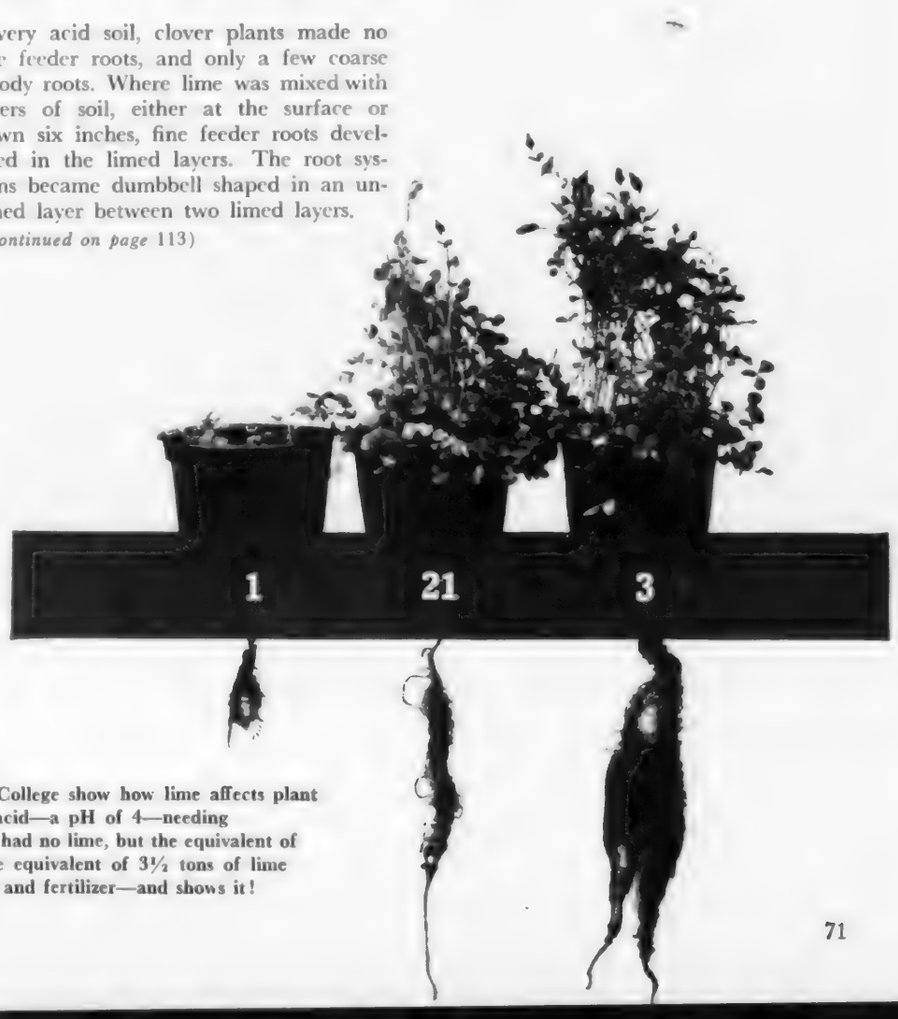
DAIRYMEN consider a good pasture the best starting place for high quality milk production. Lime can serve as a source of calcium and magnesium as well as sweetening the soil to produce more grass and legumes.

Samples may be taken with a spade, trowel, auger, or soil sampling tube. After scraping away trash, dig a hole to permit taking samples to plow depth. A soil sampling tube will cut cores of soil to the desired depth. At least 10 samples should be taken from different parts of a 40-acre field and mixed together. About a pint of this soil should be sent to your state soils laboratory to determine lime needs. The county agent or vocational agriculture teacher can furnish sample containers and give detailed instructions for sending samples to the state soil testing laboratory.

How Plants React to Lime

How does lime affect the growing plant? If you have clover, alfalfa or other legumes you'll see the difference the first year in a better stand. In newly planted and limed areas you will have a greater "catch" of legume seedlings. Liming affects the root systems of plants. Making the soil less acid induces more root growth and large root systems produce large plants. The effect of lime on clover roots has been demonstrated by Dr. F. G. Merkle of Pennsylvania State College. In a very acid soil, clover plants made no fine feeder roots, and only a few coarse woody roots. Where lime was mixed with layers of soil, either at the surface or down six inches, fine feeder roots developed in the limed layers. The root systems became dumbbell shaped in an unlimed layer between two limed layers.

(*Continued on page* 113)



THESE POTS of sweet clover grown at Penn State College show how lime affects plant and root growth. All the soil was the same; it was acid—a pH of 4—needing 3½ tons of lime per acre to bring it to neutral. Pot 1 had no lime, but the equivalent of 1250 lbs. of 6-12-12 per acre added. Pot 21 had the equivalent of 3½ tons of lime and no fertilizer. Pot 3 had the right amount of lime and fertilizer—and shows it!

Hooked Rugs

By Margaret Doty Pieratt

THE MAGIC of making something out of nothing has been dear to the hearts of women ever since Eve. In transforming the contents of your rag bag into colorful, sturdy hooked rugs, you have magic at its best. For the hooker the greatest incentive is the ability to make a rug the exact color, size and design to suit the room it is to decorate. The rugs are simple to make and are as much in style today as they were when they covered the cracks in the floor of a Colonial cabin.

The art of hooking rugs was practiced by the ancients. Its more modern form is believed to have been invented independently by the Scandinavians, Scots, and the Dutch. It was from the latter that the Pilgrims, during their sojourn in Holland, learned the art. They brought it with them to New England in 1620.

Hooked rugs are made by the simplest sort of technique. Narrow strips of woolen or cotton cloth, held taut under a piece of burlap which is stretched on a frame, are pulled through the meshes of the burlap by means of a small hook which is thrust down from the top side. The strips of cloth are hooked in the burlap, filling the meshes to follow a pattern previously stamped or drawn on the burlap. The loops of cloth stand about one-fourth inch above the surface of the burlap and are held tightly in place by the pressure of the meshes and the surrounding loops. The result is a smooth-surfaced, fine-textured rug.

The fast-working hooker, working in spare moments with an ordinary hook, may take three weeks or more to complete a 2½′ x 4′ rug. With one of the new automatic needles, which eliminates holding the strip on the under side, the same rug might be completed in a week's time. The disadvantage of the automatic hooks is that the rags must be cut very smoothly. This affects the wearing and cleaning qualities of the finished rug. If a pattern is fairly intricate, requiring much shading of colors, more time will be needed.

How many of the necessary materials you have on hand and how much equipment you want to buy governs the cost of your hooked rug. If you have plenty of woolen scraps and old garments to put into your rugs, the cost need not be great. Hooks cost from 25 cents to $1.00 for the old-fashioned type and about $1.50 to $2.50 for the automatic variety. If you want to buy a ready-made easel-type frame, which makes the task of hooking easier, it will cost you an additional $8 to $12; however, a frame can easily be built with odds and ends of lumber at home. Three types of homemade frames are in general use: (1) the old-fashioned quilting frame, (2) the roller frame, which rolls the finished rug at one end and holds the burlap on another roller at the other end; (3) the easel type shown on opposite page. This frame has slots allowing the frame to be raised or lowered.

Plain burlap costs about $1.40 a yard. With the design stenciled on, the burlap will cost from $1.50 to $35, depending on the quality and size of the pattern.

Design In Hooked Rugs

Design is the most striking characteristic feature of hooked rugs and is one of the reasons the hooked rug has endured so long in this country. A hand-hooked rug of proper design and coloring is suitable for use in rooms of any period of decoration. Good proportion, balance and possibility for color distribution in the design are essential.

Early hookers faced all manner of obstacles, including design, in making their rugs. Burlap sugar or meal bags, carefully washed, stretched and pieced together, were often used for the foundation of the rugs. Sometimes homespun linen formed the backing.

The wool in the old rugs had usually been seen at school and town meetings as skirts, scarves and jerkins. By the time New England thrift allowed a woolen shirt to be converted into a rug, it was none too soon.

For many hooked rug makers, designing was a difficult task for they had no rug designs from which to copy, few books and pictures to inspire them with a design. As long as the rug met the requisites of the time—"looked cheerful on the hearth and wore like a stone"—the work was counted a success by its maker.

Every section of the country had its type of hooked rugs, and every generation its variation. This present variation is a trend toward lighter backgrounds. Colonial Virginia and Kentucky used designs that complimented their Sheraton or Hepplewhite furniture. The scenic and colorful wallpaper of the Colonial south was another reason their rugs used fewer pictures and more background designs. The designs were geometrical or floral, and as often a combination of the two. The rug on the frame, opposite page, is typical of this combination. The geometrical design was figured so that a border of dark half squares would give the whole an anchored look. The flowers and leaves were of the simplest free hand drawing.

Most farm women liked farmyard scenes and the rural landscape. The houses and barns were architecturally correct and the costumes of the people were authentic. Some designs combined horses, birds, trees, stars and crescent moons in a whimsical way. This was especially true among the Pennsylvania Dutch farm women who enjoyed a heartier type of humor in those days than one was likely to find in New England.

Bundling, a custom of Colonial times, was chronicled in rags by one rug maker who depicted a cozy couple on her rug and announced:

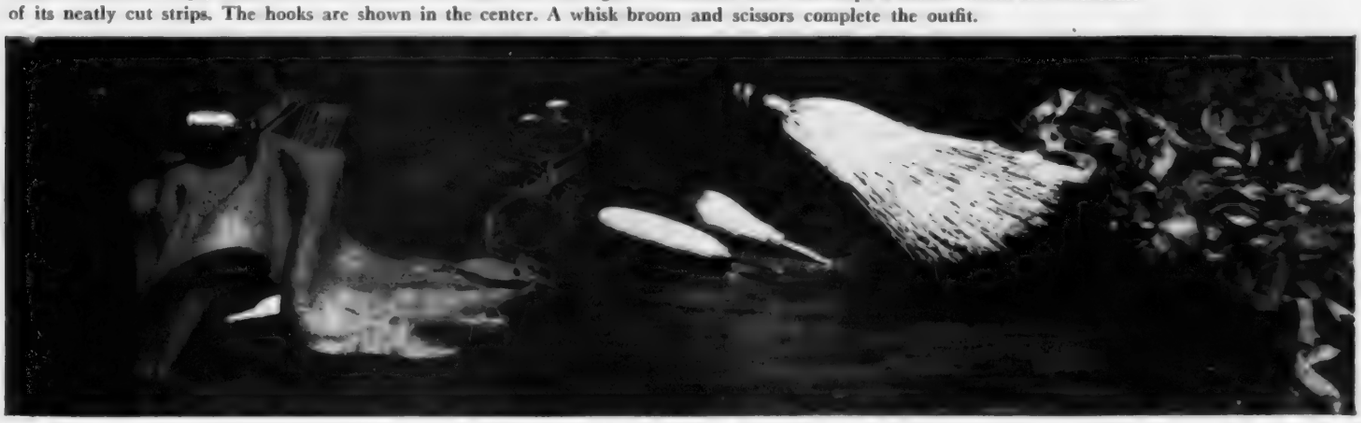
"Bundling 'tis but a sample
Of married life that is more ample.
How can a few sly hugs and kisses
Serve to measure wedded blisses?"

The Revolutionary War inspired rug makers with patriotic subjects such as the flag, the coat of arms of the Continental forces, and eagles.

Because too few rug hookers are designing their own rugs today and are relying more and more on standardized commercial patterns, there has been a certain deterioration of rug designs in recent years. Mrs. Harry King of Batesville, Arkansas, has done much to keep design at a higher level. She is a leading hooked rug de-

(*Continued on page* 120)

THESE ARE the tools needed for making hooked rugs. On the opposite page a home-made frame is being put to good use. Below, hand-cut strips, made from old clothes are shown on the right. A machine that cuts strips is shown on the left with some of its neatly cut strips. The hooks are shown in the center. A whisk broom and scissors complete the outfit.



'Possums

America's least intelligent and oldest mammal defies time and evolution

It had been a cold February day in northern Pennsylvania, but about sundown the wind shifted to the south and a thaw set in. The female opossum had slept all day in her nest under a lumber pile near the barn, but as the twilight deepened she became restless. She was a virgin, born the previous summer, but that primordial urge to reproduce was strong within her. She left her nest, crossed a short stretch of cornfield, and followed a fence row to a small stream, hunting as she went. The scent of her estrus period was borne on the wind.

She had gone but a short distance down the stream when she heard a rustling of the dry grass on the opposite bank. She stopped, alarmed, for an opossum is almost entirely defenseless except for flight and the instinctive ability to "play 'possum." But the male was not as cautious. He had caught the scent of the female from down the valley and had unerringly followed it to her. His head appeared out of the tall grass and he minced toward her, making clacking noises with his teeth and tongue.

The courtship, brief as it was, was once interrupted. Another male appeared, and the first prepared to defend his conquest. He went into a grotesque dance, hopping sidewise, twisting and stamping his feet, dragging his tail, and clacking his teeth. The intruder, timid like all his kind, soon departed. After the mating, which the female accepted stolidly and unresponsively, the two separated, and the male would not again come into the life of the female or her offspring.

The female continued down the frozen stream bed, nosing here and there for food in this barren world of February. She found a dead beetle under the bark of a rotting log, a few shrunken berries hanging to a pokeberry bush. After eating the berries, she dug a wood mouse out of her winter nest under a brush pile. The winter months are lean for the people of the woods, and the female ate anything, vegetable or animal, that came her way. Later, when frogs and toads came out of hibernation, she would feast and grow fat on them, and she would raid the nests of field mice and rabbits. Then with the season would come grasshoppers, crickets, and ants. She would turn over stones for the earthworms beneath, and might climb a tree for the eggs in a nest. She might also, if driven by extreme hunger, gnaw off a piece of her own tail. It was when the female came upon carrion that she glutted herself. She was not fastidious—a dead cat or horse, or even one of her own kind, were equally tasty to her.

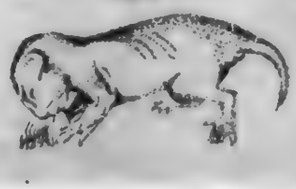
To prepare for her motherhood, the female began to build a nest. She deserted the lumber pile and found a dry, warm hole under a stump along the creek. She made many trips with leaves and grass, picking them up with her mouth, passing them back with her forefeet to her hind feet, and then into a loop of her tail. When the nest was complete, she could crawl beneath the litter, her whole body covered and hidden.

Twelve days after her mating, she prepared for the birth of her litter. She licked the fur lining of her pouch, and along a path to her pouch on her lower abdomen. The young must travel this path after birth and they cannot navigate in dry fur. Then she spread her hind legs, placed her tail between them, and lay back her ears. The back part of her body was inclined downward, for the young tend to crawl upward. Her labor pains were slight, for she delivers only a small bulk of young and embryonic membrance. In about 12 minutes she had given birth to 20 pea-sized young, a large litter for a first-time mother. Later, from the more than 50 ova shed from her ovaries at each heat period, she would deliver as many as 25 young from her twin wombs. The embryonic opossum has no umbilical cord, and cannot receive nourishment from the blood stream of the mother as the higher mammals do. The teat serves as a sort of cord after the

LEFT: Young in the fur-lined pouch, which can be opened for air or closed watertight.

LEFT: Young 17 days after birth, 1¼ inch long. Each is permanently attached to a teat.

RIGHT: The thirteen teats are arranged like a football team in a huddle.



RIGHT: Young are incompletely developed at birth. At 50 days they have grown to 3 inches.

TOP: Although opossums can hang by their tails, they use them mostly for balance and to carry burdens.
BOTTOM: The opossum makes an indifferent pet; you can tame him, but his main interest is eating.

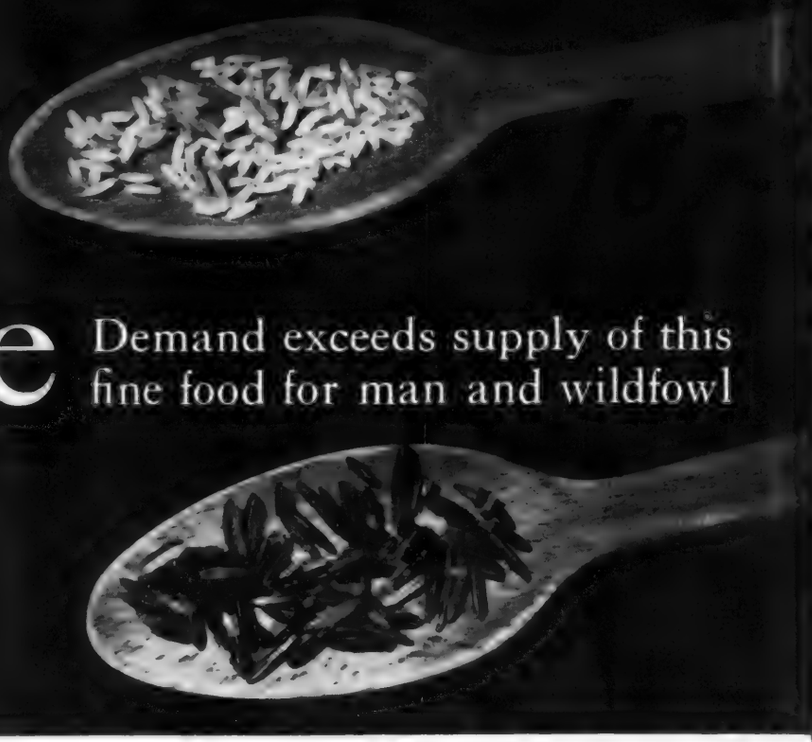
young are born.

As soon as the young appeared on the lower part of the abdomen, she licked away the embryonic membrane and fluid, for they are quite helpless and might drown if not aided. Freed from the membranes, they started the perilous journey to the pouch, climbing along the damp fur. Less than half an inch in length and weighing no more than a paper match (in proportion, a human baby would weigh only as much as a 5 cent piece), they grasped a few hairs in their front claws and pulled themselves along. In 16 seconds the first had reached the pouch; the second wandered off the path, became entangled in dry fur, and perished there. The third and fourth reached the pouch safely, but the fifth fell into the nest and was lost. Of the 20 young born, only 12 reached the pouch.

As soon as the first of the young reached the pouch it nuzzled around for a teat. The female opossum has thirteen teats, arranged in a rough circle. Not all of the thirteen may be useful, and not all of the young which reach the pouch will be able to find a teat. Regardless of how many young are born, a baker's dozen is the maximum which can survive. Only ten of the litter succeeded in attaching themselves to teats. They would re-

(*Continued on page* 108)

BELOW: At 10 weeks the young leave the pouch and accompany mother on hunting expeditions, clinging to her fur.



Wild Rice

Demand exceeds supply of this fine food for man and wildfowl

By Walter J. Hunt

A DUCK HUNTER who likes to eat his duck as well as shoot it would never think of serving it unless it were stuffed with wild rice—if he can get wild rice. Wild rice, also called squaw rice, Indian rice, false oats, and others, grows wild in the marshes of the North country. Gourmets believe it is to game what ham is to eggs. It is limited in supply; you can't buy it at every corner grocery. And it is expensive.

Certain species of waterfowl prefer wild rice to all other foods. The mallard appears to be the largest consumer of the grain, but a dozen other species of wild ducks classed as game birds like it also. Ducks dive in shallow water and dibble in the mud for the seeds. The woodduck feeds on the flowers and wild geese eat the stems and leaves. The bobolink and members of the rail family eat the seeds from the stalk.

Botanically Speaking

Wild rice is an annual grass which grows chiefly along the marshy shores and in the lakes and ponds of Canada, Minnesota, Wisconsin, and northern Michigan. It is also found along the Atlantic coast in shallow lakes and on marshy lands above brackish water. It will do well almost anywhere it finds soil and moisture right—plantings are thriving in the deep South and and far West. Where the lake is small and shallow, the rice may grow over the entire lake. It reseeds itself from grains dropped the year before, or it may be planted by hand.

After the plant, which varies in length from 9 to 48 inches, extends above the surface of the water, a panicled head forms, it blooms, and the kernels develop. The kernels, each contained in a husk of its own, resemble large kernels of wild oats. In August the grain begins to ripen on the lower part of the head; as the season advances it matures toward the top. There may be several weeks gap between the first appearance of ripe grain on a stalk and the last at the top of the panicle.

The Harvesting

Harvesting the rice, or "ricing," as the people of the North call it, has been done from time immemorial by the Indians, although they have no monopoly. Wild rice has been a staple part of their diet, taking the place corn has among the Indians in the corn country. Harvested and stored in baskets, it was the main plant food during the winter. It was used in stews, soups, and carried on hunting expeditions.

THE ILLUSTRATION at the top of the page shows the size and shape of wild rice as compared to ordinary polished rice. BELOW, green rice is dumped into one of Harold Myers' ovens for parching. Paddles agitate it over a slow fire. The mask is to ward off dust and chaff.

Anyone who can buy a license can harvest wild rice. Since most of the rice fields are public domain, licenses are issued by the conservation departments of the states, which also set the time of harvest.

A few home-made mechanical harvesters have been built, but these are outlawed in most places.

On reservations in Minnesota, only Indians with a family allotment on one of them and whites who reside within a reservation area may harvest rice. Elsewhere anyone may harvest on public waters that have been opened by the conservation department. Some 3,000 licenses were issued in Minnesota alone last year.

The opening day of the rice harvest is set after enough grain has shattered off the heads to feed the wildfowl and to reseed the area for the following year.

The ricers use primitive methods, much like those devised by the Indians hundreds of years ago. They move through the fields in canoes or flat-bottomed, low-sided boats not more than 3 feet wide and not more than 16 feet long. The ricers work in pairs, one poling the boat, the other gathering the rice. The latter, using a light stick in each hand, pulls a tuft of rice across the boat with one stick and beats out the kernels with the other. The rice falls into the boat and the stalks are uprighted again so that the green grain may ripen and be gathered later. A pair of ricers can gather up to 200 lbs. a day on a good stand.

The Indians cure "green" rice by heating small quantities, about a peck at a time, in an open kettle. This parches the grain, reduces the moisture content, and loosens the hulls. The grain is treaded or flailed and then winnowed by throwing into the air. It takes a little less than three pounds of green rice to make one pound of dry, hulled and cleaned grain. Parching improves the flavor and keeping qualities.

Wild Rice Factory

One reason why wild rice is expensive and in short supply is that, traditionally, it is harvested and marketed by individuals, mostly Indians. A few pounds here and a few pounds there of their surplus have trickled down to markets in the cities. Recently, however, men like Harold B. Myers, of Cass County, Minnesota, have organized the harvesting, processing, and marketing of the crop in their particular areas, and established some stability of supply.

When Myers, a part-time farmer, began buying and processing, he soon realized that he would have to find a quicker and more economical way of curing wild rice than the Indians were using.

He designed and built a little factory on his own farm, and introduced mass production and improved methods of handling. In the main room of his plant he built two open, home-made wood-burning furnaces. A frame over each supports a circular oven mounted on rollers and equipped with revolving, power-operated paddles. The ricers bring their grain to the plant, have it weighed, and then dump it into large supply trays. From these it is poured in batches into the cylindrical ovens. The paddles keep it from scorching while it parches over the fire. When the rice is properly dried, the oven is rolled back from the fire and emptied. The parched rice then goes into a home-made thresher. This takes off the hulls, which are carried away by a suction fan.

Myers used a large oil drum to make his threshing machine. Beaters, on a power driven axle, knock off the hulls. Both the inside of the drum and the beaters are padded with rubber so that the kernels of rice themselves are not broken. The lightweight chaff escapes through a pipe at the top. The final step consists of putting the threshed grain through a small cleaning mill and then sacking it in 100-pound sacks.

Myers sells wholesale in lots up to a ton to distributors who pass it on to retail stores in smaller quantities. He has built up his wholesale business to a total of 80,000 pounds of "green rice" yearly, or about 30,000 pounds of the finished product. Retail buyers pay from $2.25 to $2.75 a pound for rice. The consumer usually buys the rice in small lots, 4 oz. to 8 oz. packages. The average current price is 67 cents for a 4 oz. package. The ricers get from 30 to 50 cents a pound for the green rice, the price depending on the

(*Continued on page* 111)

THE BEST WAY to harvest wild rice is by the primitive methods of the Indians. This Chippewa squaw pulls the rice across the boat and beats out the grain while her son poles the boat. A pair of ricers can harvest 200 pounds in a day.

Caponizing for Profit

By Howard Beuoy

THERE IS as much difference between the breast of a capon and the breast of tough, old rooster as there is between a steak from a corn-fed two-year old steer and a slab of leathery bull meat. Buyers know this difference, and last season paid an average of 10 cents a pound more for capons than for all other poultry. The capon not only produces better meat, but makes cheaper gains than most other birds and is easier to handle than the belligerent rooster.

Poultry raisers who are bent on making every dollar that good management and care will produce are taking a greater interest these days in the ancient art of caponizing.

Capons are altered male birds, just as steers are altered male cattle, and barrows are altered male swine. The removal of the sex gland makes the birds more docile, improves the quality of their meat, and gives them a slight growing advantage over roosters. On the Eastern spring market, capons were selling for 55 cents a pound as compared to 21 cents for roosters of the same age. Capons average from 6 to 15 pounds each, depending on the breed and the strain within the breed.

Any male chicken can be caponized, but, since they are raised for meat, the heavier breeds are generally selected. For marketing reasons, those having yellow skin and legs are preferred over white skinned varieties or those with black legs.

As a matter of fact, any of the bird species can be caponized. One turkey capon is reported to have reached a monstrous 50 pounds before he arrived at the chopping block, but since tom turkeys don't develop a staggy taste until after they are a year old, the operation is usually not performed on them. Some ornamental birds are caponized in order to get a more brilliant plumage.

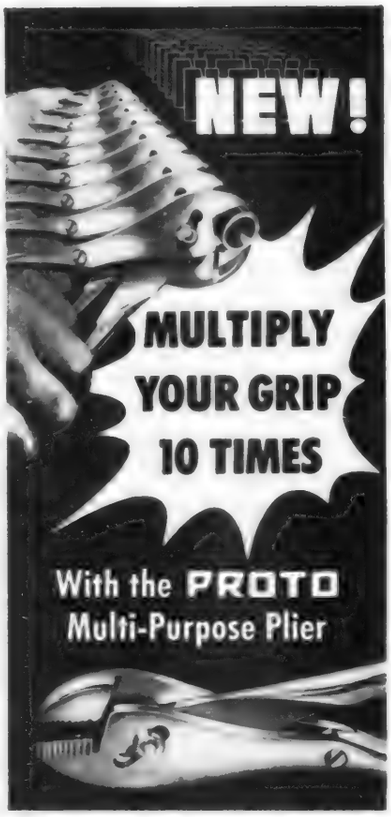
The art of caponizing and the improved quality of capon meat has been known for thousands of years. Bone and copper instruments for puncturing the body cavity and removing the sex glands were in use in Rome before the time of Christ. In the early days of this country, capon was eaten at such great houses as Mount Vernon, Monticello, and on the plantations of the South. One Southern planter discovered that one of his slaves had brought with her from Africa the knowledge of caponizing. She allowed the nail of her little finger to grow long, trained it into a cup shape, and then split the nail apart like the claws of a hammer. This shaping and cutting made the fingernail into a crude gland remover. To caponize, she made an incision, inserted her fingernail into the body cavity,

(*Continued on page* 103)

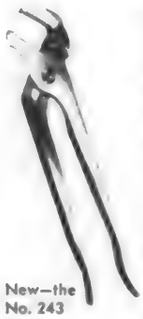
THE GLAND IS REMOVED by cutting the twisted cord. Electric forceps eliminate the knife by burning through the cord.

THE ELECTRIC KNIFE burns and cauterizes an incision at 1500° F. The bird is stretched by wings and feet in a metal bow.

THIS CAPON crows like a rooster and broods chicks like a hen. At seven months he will be ready for the oven, weighing eight pounds.



Try the sensational PROTO No. 234 Multi-Purpose Plier and you will want one for sure! Using a patented three-piece compound leverage design, pressure applied to the handles is increased *ten times* at the jaws! This plier is actually "a chest of tools in one." It securely holds square, round and even tapered objects. To make your work easier, buy one today!



New—the No. 243 Multiple-Groove Joint Plier, which Handles Hundreds of Jobs. Five-Position, Tongue-and-Groove Joint Prevents Slippage.

Choose PROTO for Your Other Plier Needs

In the extensive PROTO line, you will find the right size and style of plier for almost every job. And remember that every one has true *professional quality*. Send 10¢ for complete 68-page catalog to

PLOMB TOOL COMPANY
2266A Santa Fe Ave.,
Los Angeles 54, Calif.

5384

PROTO TOOLS

Eastern Factory: Jamestown, N.Y.
Canadian Factory: London, Ont.

GARBAGE FED HOGS

(*Continued from page* 55)

What is your worst disease problem with garbage feeding?

"Our worst losses have been with Necro and next worst is a form of Anemia. Our vets tell us this is from a soil condition. Third, is cholera. We vaccinate for cholera using the double method—3 cc of virus and 40 cc of serum at 6 to 8 weeks, but it is still a problem. We have had VE. But it is not a killer. It does set the hogs back and we are quarantined for 30 days at a time until it is cleared up. Even in the worst epidemics on hog ranches in California, no more than 20 per cent ever got it. And you get it whether you feed grain or garbage. For the protection of cattlemen, we keep cattle in the pens with the hogs. If VE does break out we have the check on the cattle to see whether it could be Hoof and Mouth Disease, and that is the big problem, you can't tell the two diseases apart in hogs.

"I've fed hogs grain and I've fed them garbage. There are a special set of problems for each kind of feeding. Garbage feeding can be done under sanitary conditions."

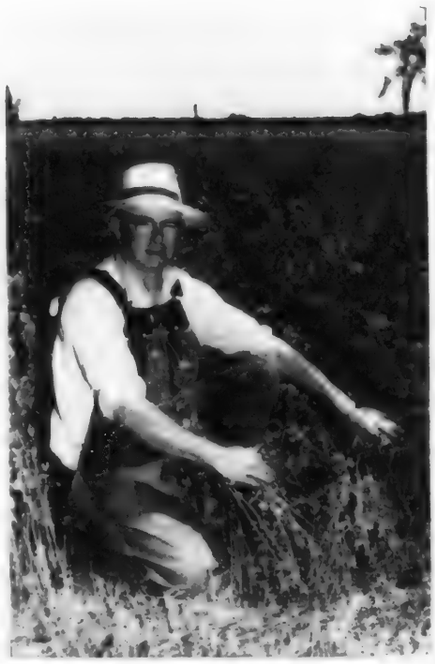
Saltonstall is planning to experiment with cooking the garbage for his hogs, himself, even though no California law requires it at the present time. With the help of the Los Angeles County Livestock Inspection Department and the State Extension Service he plans to run 250 hogs on cooked garbage and 250 hogs on raw garbage. They will be handled in pens of 50. The cooking will be handled by the Clayton Manufacturing Co. of El Monte, Calif., which has made steam generators and has designed rigs for cooking in trucks.

Livestock Inspectors

Dr. C. E. Wicktor, the Los Angeles County Livestock Inspector, who is responsible for checking the health of animals in the county where more garbage feeding is done than anywhere else, has this to say: "There is proof that when garbage is properly cooked, it will be pasteurized sufficiently to destroy the virus of Vesicular Exanthema contained in the garbage. Our experience in Los Angeles County indicates that pieces of infected pork in the garbage are the chief source of infection. We cannot overlook the human element—the promiscuous movements of hogs from farm to farm are also a source of infection. If garbage is properly cooked, other elements can be reduced to a minimum by regulation."

Who Feeds Cooked Garbage?

Henry Rafacz, manager of the Andrew Rafacz and Sons Farms of Orland Park, Illinois, set up an efficient, unique, garbage-feeding, grain farm combination on their 500 acre Illinois prairie farm. His careful management program begins with



Ask Tony Eder

about *"controlled-depth"* seeding

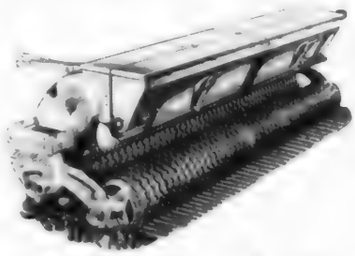
He'll tell you how his Brillion Sure-Stand gave him this fine hay crop on only 8½ pounds of seed per acre.

Today, a catch of grass is no gamble for Tony Eder, Hilbert, Wis. Planting just 5 pounds of alfalfa and 3½ pounds of brome per acre, he gets a full, uniform stand like the one above.

The reason for his success is simply this . . . with "controlled-depth" seeding, his Brillion tucks every seed no deeper than ½ inch; then firms the soil around the seeds for sure, early germination. This firm seedbed gives seeds and seedlings all the benefit of moisture drawn from below by capillary action.

The Sure-Stand provides "controlled-depth" seeding through more efficient pulverizer wheels. They have the right concavity, the correct size and shape for uniform penetration. And, because they are spaced on 2-inch centers, they can't cover more than ½-inch.

Look into the Brillion "controlled-depth" seeding principle. See your nearest Brillion dealer for a demonstration. For free booklet by mail, write The Brillion Iron Works, Inc., Dept. SG-3-12, Brillion, Wisconsin.



Brillion
SURE-STAND
GRASS SEEDERS
5'4", 8' and 10'8" models

ACKNOWLEDGED LEADER OF ALL THE SEEDERS

the garbage collection itself. His route in Chicago covers 106 miles per day and starts at 6 p.m. in the evening and ends at 4 a.m., when his brother, who handles the pickups, drives up to the steam generator. Since Chicago municipal regulations provide that private businesses must have private scavengers, Henry begins with a select clientele of hotels, restaurants and night clubs which produce high grade garbage. His patrons pre-sort the garbage for him and he gets the "Chanel No. 5" grade which is mostly soups, meats, stews, sea food, potatoes, and boiled vegetables.

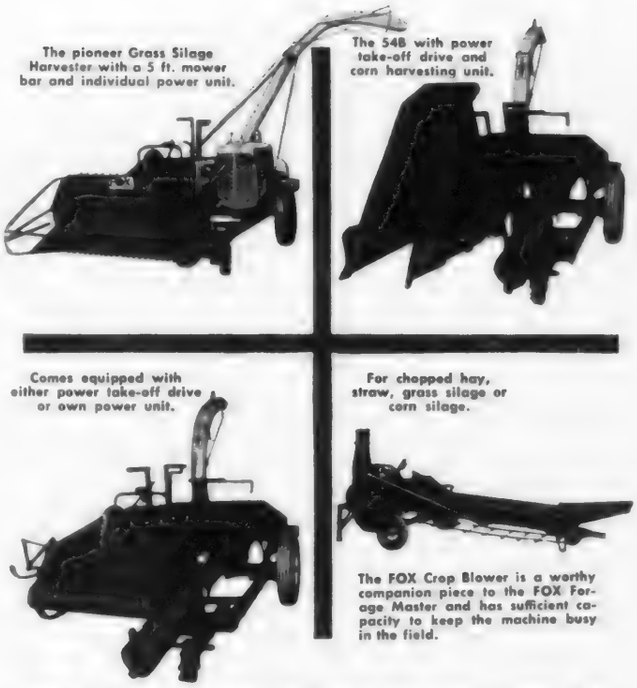
In accordance with the new regulations, Henry says he cooks all of his garbage. He does it a little differently than Pierre, the chef at the El Clippo Club, where these choice morsels originate, for he cooks it in 13-ton batches. Rafacz's truck, in which the remains of the $15.00 blue plate special are picked up, has a welded steel box 16′x4′6″x8′ with a special slanted fixed tail gate that permits uniform dumping. It holds 13 tons of garbage and is the stew pot in which the daily hog stew is prepared. Welded to the bottom of the truck are eight 1″ steam pipes with a total of 158 drilled holes. The eight pipes connect to a manifold with an individual valve for each pipe. Steam under 70 pounds pressure is introduced through the manifold for 1 hour from a special high capacity $4800 steam generator. A recorder controls the temperature of the cooking garbage at 210° F. at a total net cost of approximately $1.00 per ton of garbage cooked. This "consomme 'de Rafacz" is then spread by the truck in a windrow across the cement feeding yards. Rafacz's steam generator is made for garbage cooking by Littleford Bros. of Cincinnati, Ohio.

The garbage is only two-thirds of the hog's ration, the remaining one-third is made up of equal parts of alfalfa, corn cob meal, and oats, all products of the 500 acres of Rafacz's Farms. The protein content of the "slumgullion" is strictly a guess and it varies considerably from day to day. It complicates the feeding procedure because only enough is fed, twice daily, as the hogs will clean up. Overeating is a constant danger. This means close watching and constant adjustment of total volume of feed daily. Henry estimates that he sees each of his 3000 hogs once every two days. (Note to average grain hog farmer—how often do you see your hogs?) Certainly this is no job for a greenhorn. The grain is fed on top of the garbage from a dump truck that straddles the windrow of garbage and scatters the grain mixture as it drives along. Grain mixture consumption averages about three lbs. per hog per day at the 150-lb. weight.

Keeping the Hogs Clean

Rafacz's management practices are very rigid. Some are unique and practical and could be applied wisely to almost any kind of hog operation. At 5 P.M. each day all hogs are driven into 200′x20′ barns, split lengthways with a 6′ alley along one wall and 12′ bedding platform curbed with cement along the other side. Immediately cleaning operations begin on the feeding platforms. All inedibles are hand picked, glass, tin, etc., and thrown into steel barrels for the dump: bones go into a bin for pickup later by some scavengers. Next comes an overall scraping by outsize hydraulic manure buckets on the front of a tractor. Drains are adequate for all liquid removal. Next comes the Rafacz squeegee special. It is an Allis Chalmer "G" tractor shortened by 2′ and with a special 6′ rubber squeegee-like blade designed and built by Henry himself. When the squeegee is finished, the cement is a clean as possible, short of steaming and scrubbing.

There lies the primary factor in keeping hogs healthy in Henry's book. Dry! Keep 'em dry. Manure removal rapidly becomes a problem with hogs in large numbers but Rafacz has solved it with a combination of European theory and modern American farm practices. Andrew was a firm believer in the manure pit of his native Poland, so Henry adapted it to modern American farming. All drains from all lots and barns empty into a cement pit 160′x40′x15′ deep. All manure and platform scrapings are dumped into the pit. The liquids in this tank are pumped off and sprayed on alfalfa twice between cuttings. The solids are spread from dump bodied half-tracks specially


The pioneer Grass Silage Harvester with a 5 ft. mower bar and individual power unit.
The 54B with power take-off drive and corn harvesting unit.
Comes equipped with either power take-off drive or own power unit.
For chopped hay, straw, grass silage or corn silage.
The FOX Crop Blower is a worthy companion piece to the FOX Forage Master and has sufficient capacity to keep the machine busy in the field.

THE FORAGE HARVESTER THAT-

Gets Things Done

The FOX Forage Master operates day after day without breakdowns or stoppages. Farmers who recognize quality and who demand the best, own FOX Forage Masters. More than 23 years of actual experience in building forage harvesters have helped us to perfect the FOX. It is the recognized leader in its field. No other forage harvester has the dependability and the capacity of the FOX. The FOX gives you many years of trouble-free performance. It is the only harvester with a positive safety device that protects the machine against damage. And remember — the FOX Forage Master is the favorite with leading farmers everywhere.

QUICK CHANGE

The only harvester that can be changed from one unit to another in less than 10 minutes, by one man, without tools.

Longest Life
Greatest Dependability
and

FOX

SEND FOR YOUR FREE CATALOG

FOX RIVER TRACTOR COMPANY
The Pioneer of Modern Forage Harvesting
5123 North Rankin Street
APPLETON FOX WISCONSIN

READ HOW TO GET SOFT WATER RIGHT OUT OF YOUR FAUCET!

DOW'S interesting free booklet tells how to get water soft as rain that is better for your complexion, hands, hair, clothes and budget

Remember, whether you buy your own equipment or subscribe to a service, be sure to get a water-softening unit bearing the DOWEX label. It is your assurance that it has been designed to use DOWEX and that it meets rigid quality specifications.

Now you can learn how simple and inexpensive it is to get the right kind of water for all of your washing—***really soft water right from your faucet.*** That's the purpose of Dow's free booklet about its high-capacity water-softening resin—DOWEX®—to give you all the facts you should know about soft water.

You'll read why and how the water you use may be harder than you think . . . may be affecting your laundry, your skin and hair, and even the flavor of the food you cook. The booklet maps the location of hard-water areas, tells you why water in these areas is hard, why it wastes soap, leaves deposits on cooking utensils—and what to do about it.

You'll see how modern water-softening equipment works with DOWEX, a product of Dow research, to give you the luxury of really soft water right out of your faucet and within reach of every budget.

If you are already using water-softening equipment, be sure to investigate the advantages of DOWEX. These tiny bead-like granules are scientifically designed. Because of this, they soften water far more effectively than other materials . . . bring about important savings in dollars and cents. In fact, ***DOWEX makes it possible for water-softening equipment to pay for itself.***

Write for details on DOWEX today. THE DOW CHEMICAL COMPANY, Midland, Michigan. DOWEX is distributed to equipment manufacturers by the National Aluminate Corporation . . . the foremost organization in the water-conditioning field.

The Dow Chemical Company
Midland, Michigan, Dept. 1822A

Please send by return mail the new, free booklet about the modern way to soften water.

Name_____

Address_____

City & State_____

☐ I am now using water-softening equipment.

☐ I do not use water-softening equipment.

you can depend on DOW CHEMICALS

DOW

adapted by Henry. The application of these materials is giving the Rafacz way above average yields of corn, oats, and alfalfa on their 500 acres.

Rafacz's farms do not farrow any pigs themselves, but buy all their feeders. The attempt is to standardize to an 80-lb. to 100-lb. shoat that is healthy, castrated, and a good doer. They changed their policy last summer and purchased 2000 head of 40 pounders from the Sun Prairie Feeder Pig Marketing Association of Sun Prairie, Wis. Henry reports they have had as good results with these as with heavier hogs.

All new hogs coming in are sorted for size and kept in uniform size groups even if it takes reshuffling two or three weeks later to maintain uniformity. When he buys feeders he wants a good tough, rugged, stretchy, thrifty, bright-eyed, healthy looking pig. He prefers cross-breds with one-cross.

Necro and contagious enteritis are the two principal disease bugaboos. Quarantine and immediate treatment are the answer. Each barn has a quarantine pen and any hog vaguely suspicious is immediately quarantined (remember Henry sees each hog once every two days). Hog cholera is a problem, but control is adequate with a vaccination policy of 4cc of virus and 60cc serum. MLV (modified live virus vaccine) is being tested and looks good. Atrophic Rhinitis is uncommon with Henry and most garbage feeders.

The new hogs' introduction to garbage depends on their health condition as well as the psychological moment. Here again is the test of a good hog man. When Henry finds a group of newly arrived hogs restless, easily frightened, sleepless, and generally nervous, he never starts them on garbage until they are settled down and squared away.

The New Laws

In the control of disease in this country, laws have been framed to control everyone. Those who were the offenders have been brought in line. Those who were doing a good job without the law have had little trouble complying with it.

"The upshot of the whole VE program," says one Wisconsin hog breeder, "is that it points out the real villain, namely the frightening lack of information about animal diseases and their control. It also points out just how open the livestock industry is to sabotage and biological warfare."

The new laws requiring the cooking of garbage will be enforced, but there will be considerable commotion in the industry before the enforcement is complete. There always is when big money is at stake.

THE AUTHOR: Since Al Haller was graduated from the University of Wisconsin's College of Agriculture—where he was the Big-10 pole vault champion—he has been managing farms. He has managed average-size general farms, big farms, and pig hatcheries. At present he is manager of one of the nation's largest feeder pig associations.

There's Lasting Beauty and Lifelong Protection in a CONCRETE HOUSE

A sturdy concrete masonry house offers you and your family a combination of lasting beauty and lifelong protection. Regardless of the style house you prefer, concrete masonry can be laid up to achieve a variety of attractive patterns. Finished in the color of portland cement paint you desire, your home will have enduring beauty and give you real pride of ownership.

You get an extra measure of protection for yourself, your family and your cherished possessions when your home is constructed of durable, safe concrete. That's because a concrete house gives you maximum protection from:

How to Get a Firesafe Farm Home
—and what will it cost?

When you're ready to build, call a concrete masonry manufacturer for the names of architects and builders experienced in concrete house design or construction. They can tell you about local requirements and costs. Concrete masonry house plans are available from most state agricultural college extension services or county agents. Mail coupon for free booklet, "*Concrete Masonry Farm Homes.*" Also ask for other free literature (mailed only in the United States and Canada) on such subjects as:

Remodeling • Poultry Houses • Hog Houses Silos • Building with Concrete Masonry Paved Barnyards • Making Concrete

HIGH UPKEEP. Moderate first cost + low maintenance expense + long service result in *low annual cost.*

STORMS. Durable concrete gives greatest protection against destructive twisters, rainstorms and hail.

FIRE. *Concrete can't burn!* It doesn't pay to take unnecessary chances! Be sure to use firesafe concrete.

TERMITES. Buildings with sturdy concrete floors and foundations are safe from such damaging pests.

PASTE COUPON ON BACK OF POSTCARD AND MAIL TODAY

PORTLAND CEMENT ASSOCIATION
Dept. A12-86, 33 West Grand Avenue, Chicago 10, Illinois

A national organization to improve and extend the uses of portland cement and concrete . . . through scientific research and engineering field work

Please send me free literature, which is distributed only in the U.S. and Canada, on the following (list subjects):

_____

_____

Name _____

Street or R. No. _____

Post Office _____ *State* _____

GROWN SUCCESSFULLY FROM
MAINE TO CALIFORNIA

america's best-tasting* sweet corn!

"SENECA CHIEF"

DEVELOPED BY
ROBSON SEED FARMS
LEADING BREEDERS
HYBRID SWEET CORN

Here's the sweetest, tenderest, corn you ever tasted! One happy customer writes: ". . . this corn is so good it's even delicious without butter or seasoning." (We still like it best with butter, salt, and pepper, but we're glad to get such a glowing testimonial!)

Ears are 9" long with 12 rows of deep, narrow, tender kernels. HOLDS IN EATING CONDITION ON STALK LONGER THAN ANY OTHER VARIETY.

☐ $1.10 lb. ☐ 5 lbs. $3.25
☐ 2 lbs. $2.15 ☐ 10 lbs. $6
(Postpaid)

*best for freezing too

MAIL COUPON TODAY

ROBSON SEED FARMS
BOX 405, HALL, N. Y.

☐ I enclose_____Send me_____lbs. of Seneca Chief Hybrid Sweet Corn

NAME_____

ADDRESS_____

TOWN_____STATE_____

SEND FREE CATALOG

THE BIG TREK

(*Continued from page* 59)

their fears, caprices, or sudden lust which threw them against any likely field along the highway. With a well-aimed stone, a lashing of their long whips, or a thwack of their staffs, the shepherds were apt at bringing back into line as many as thirty stampeding sheep.

Nevertheless, a man could not manage a large band of sheep and goats without the invaluable help of his dog. However tired he might be, at the least gesture or shout of his master, a sheepdog would start at top speed, harass the sheep, bring them back into line or into the open, have them turn right or left, or stop. Their precision, nimbleness and cleverness was startling.

No lapdogs, either, those tough wardens, half-wolves and half-*labri* or sheepdogs. Their silent yet eloquent way of baring their fangs soon discouraged any attempts at making friends on my part. Anyhow, each would only obey his own master, but his abject, crawling obedience made him the slave, rather than the ally, of the man for whose sake he betrayed his fellows.

Even at the halts they were to mount guard over the flock at their allotted posts. Only at the call of his name, each dog would go in turn and throw himself ravenously on the *polenta,* disposing in record time of that thick yellowish mush.

To the uninitiated one sheep may look very much like another. But as we trudged along, some sheep began to represent separate identities to me. I noticed that it was always the same lazy bodies which let themselves be carried, in the middle of the flock, by the flow. It was the same adventurous souls that kept themselves at the fringes of the crowd, at the risk of a possible nip for disobedience, but balancing this punishment against the chance of snatching some blades of grass.

I grew aware that, on the pastures, the flock would scatter away in several groups —invariably made up of the same animals. Bastian told me that each cell was a family grouped around the grandmother ewe. The networks of slightly raised papillae on the bare muzzles of the sheep as clearly identified the individuals as fingerprints identify a man. Even among inbred animals no exact similitude in these marks has ever been recorded. To Bastian, this was the best proof of the individuality of his charges. He had followed each since birth and was able to tell me which was the daughter of which. He had bestowed upon each a name, descriptive of its appearance, qualities or defects.

One beautifully plump ewe, Bastian had called "La Caille," for we say in French "as plump as a quail." A black spot on her muzzle had earned for another the name of "La Bizardo"—the Black One. Another with rather a threadbare fleece was for him "La Ploumardo" — the Moulting One. Yet another rather fond of grass was "La Goulardo"—the Glutton. A good milk-giver was affectionately

BOSTROM IMPROVED FARM LEVEL

Accurate, Durable and Complete for Terracing, Ditching, Irrigating, Tile Draining, Grading, Running Lines, Turning Angles and etc.

The Bostrom is used and endorsed by Schools, Extension Service & Individual Landowners everywhere.

Anyone can operate a BOSTROM Level by following the simple direction booklet included with each Instrument. We manufacture 3 models; Farm Level, Contractors Level, Convertible Level. All BOSTROM Levels are sold on the guarantee of satisfaction or money back. WRITE TODAY for literature, prices and name of our distributor near you.

Bostrom-Brady Manufacturing Co.
534 Stonewall St., S.W. ATLANTA, GA.

Angus heifers make SUPERIOR MOTHERS

Less calving trouble

Angus heifers have less calving trouble, for Angus calves have smaller, polled-shaped heads. Gives you more calves to sell.

Give more milk

Angus cows are alert, aggressive mothers . . . provide more milk for their calves. Gives you bigger calves to sell. Be ahead! Build an Angus herd! Buy Black heifers!

American Angus Assn., Chicago 9, Ill.

SAVE ½ ON FARM BUILDING COST WITH NATIVE LUMBER

The Belsaw ONE-MAN Sawmill produces smooth, true-cut lumber from any farm wood lot . . . Easily handles logs 8" to 36" in diameter.

Low-Cost Belsaw can be powered with tractor or old auto engine. Requires no previous experience. FREE Book tells how to *save* with native lumber . . . Send today for your copy of "How To Make Lumber".

BELSAW MACHINERY CO
8575 FIELD BUILDING
315 WESTPORT ROAD, KANSAS CITY 11, MO.

VALUABLE CATALOG OF Exterior Plywood FARM BUILDING PLANS

YOURS FOR ONLY 10¢

SEND TODAY for this brand-new catalog. Lists 34 plans for modern, low-cost Exterior plywood farm buildings. Each listing has illustration, description, source of plan. Write Douglas Fir Plywood Association, Tacoma 2, Washington.

And remember, for fast, tight, durable construction choose Exterior-type Douglas fir plywood. EXT-DFPA● on panel means waterproof glue.

"SIMPLE and EASY"
ELASTRATOR
PATENTED. TRADE MARK REG.
BLOODLESS CASTRATION

DEHORNING, DOCKING. No cutting! Time-tested. Elastic ring method. One-man operation, any weather!

AT DEALERS or . Postpaid $12.50. Rings extra: 25 rings, 50c; 100, $1.80; 500, $7; 1,000, $12. (Get genuine Elastrator rings with yellow mark.)

CALIFORNIA STOCKMEN'S SUPPLY CO.
151 Mission St., Dept. S San Francisco 5, Cal.

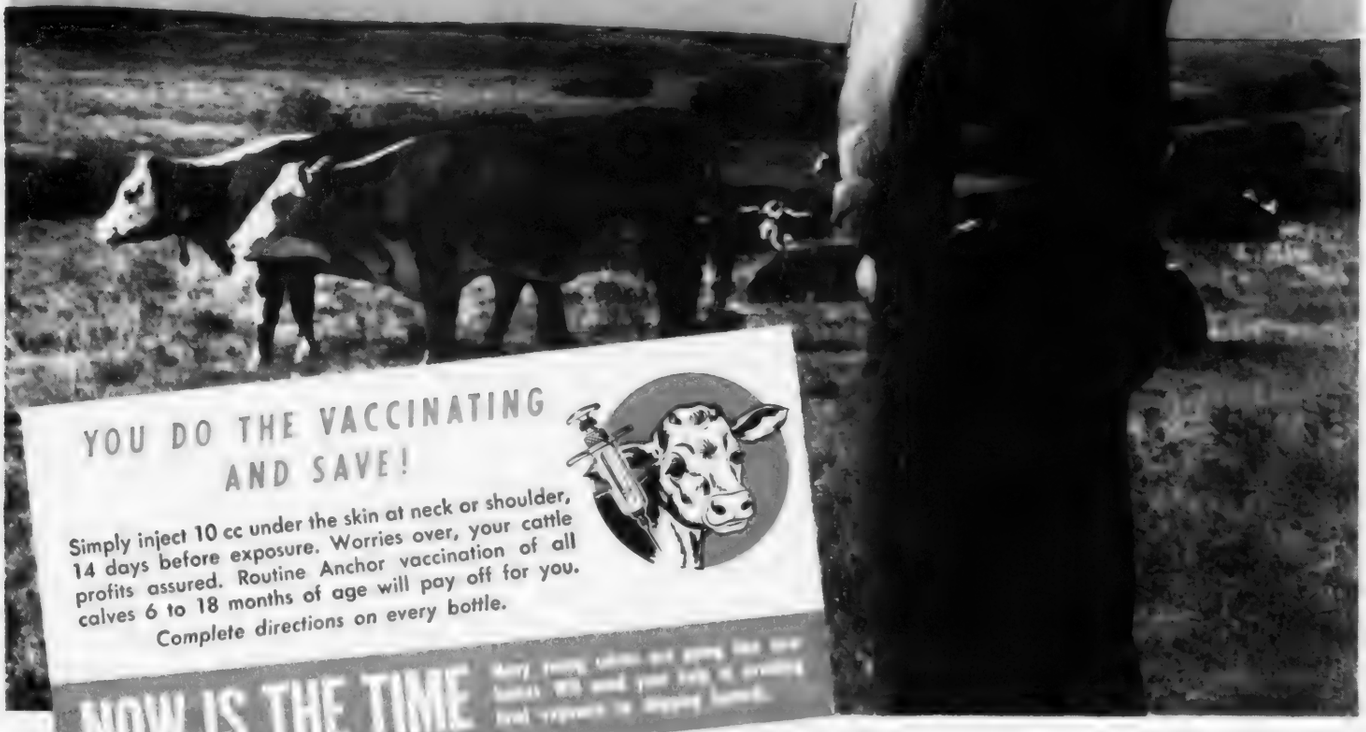
Farmers Now Ask for

ANCHOR'S 3 IN 1 VACCINE

when they want Economical

Shipping Fever Protection

● Because they KNOW this well established vaccine PREVENTS Shipping Fever — protects against Blackleg and Malignant Edema — and does it in ONE easy vaccination shot. Get this protection against 3 of the most serious diseases of cattle for your herds. Get 3-in-1 Vaccine — the *proven* METHOD THAT SAVES DIAGNOSIS — SAVES TIME — SAVES "EXTRA" HANDLING — and "ships in" healthier profits.



YOU DO THE VACCINATING AND SAVE!

Simply inject 10 cc under the skin at neck or shoulder, 14 days before exposure. Worries over, your cattle profits assured. Routine Anchor vaccination of all calves 6 to 18 months of age will pay off for you. Complete directions on every bottle.

NOW IS THE TIME

ASK YOUR DEALER for 3-in-1 Vaccine Today.

Available in 5, 10 and 25 doses.

ANCHOR SERUM COMPANY

SOUTH SAINT JOSEPH, MISSOURI

Ask about Anchor's popular new Hog Cholera Vaccine, TRUE-VAC, with the safety serum balancer.

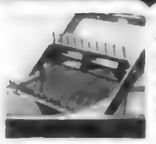
SPREADS MANURE
EVENLY!
For BIGGER Crop Yields

THE Roderick Lean REAR END "WIDESPREAD" HANDLES BIGGER LOADS IN LESS TIME, SPREADS THEM EVENLY AND COMPLETELY PULVERIZED FOR THE BEST RESULTS

Experiment station tests prove that manure should be spread evenly and thinly for better yields per acre. With the exclusive feature of the "Widespread," you are assured of getting the most out of your manure.

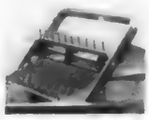
The famous all-steel, non-clogging beaters and special "twin spiral" blades do the perfect pulverizing and spreading jobs. See for yourself how the rugged, dependable Roderick Lean "Widespread" can put money in your pocket.

Here's What Makes the BIG DIFFERENCE!



ALL-STEEL BEATERS have a "Hammer Mill" action that pulverizes all manure, straw and stalks thoroughly.

SPECIAL DESIGNED "TWIN SPIRAL" BLADES grab all the manure from the beaters and spread it in 10 feet wide swaths, evenly and thinly.



EXCLUSIVE "PROTECTO" ARCH of heavy channel over rear of spreader prevents bulging of sides... protects the beaters . . . controls feeding by regulating the flow of manure. Enables spreader to handle up to 95 bushels faster.

Plus Other Exclusive Saving And Safety Benefits

WATCH RODERICK LEAN GROW IN THE SPREADER FIELD—BIG THINGS ARE AHEAD.

See Your Farm Tools, Inc. Dealer Today For A Demonstration...Or Write For Literature Direct

. . Farm Tools, Inc., Mansfield Ohio. Dept. A

Manufacturer
Leaders in Building The Famous Roderick Lean • Mobil Disc • Manure Spreaders Diskwik • Mandisk • Spike Tooth Harrows Spring Tooth Harrows • Vulcan Rollers and Sprocket Pulverizers • 3 Point Hitch Tank Type Disc Harrow Rotary Hoe Spring Tooth Harrow • Massey Single and Double Chain and Handy Auger Elevators Corn Sheller, Hammer Mill

dubbed "La Bacouno"—Little Cow. "La Lobretto"—the Hare—was a goat which continually lept like that long-eared animal. A butting-addict billy-goat was simply "Testa de Pipa"—the Blockhead. Amazingly enough, every animal would come along at the call of his name to be fondly petted by the senior.

Before long, I could see ahead far more formidable obstacles than the lesser chain of the Alps already tackled.

As we walked along the edges of the Cadarache forest, Bastian had a quick glance at the flock, scanned the sky and forecast that, within the hour, a heavy downpour would descend upon us. The sun was brightly shining; not a single cloud, be it as big as a man's head, was sailing across the sky—and yet, he proved accurate.

Though no signs were written in the sky, the behavior of his charges provided him with the clue. The animals are receptive to the least shudders of the sky, the earth, the trees, that we men have drifted too far from nature to sense. Smelling some subtle change in the moisture of the air, the sheep had gathered into a single pack so as to withstand the fury of the elements and had quickened the pace.

The Pitiless Law of Nomadism

I was soon to find out that not every ewe is the good mother of story books. As we were tackling the steep St. Madeleine slope, something fell at my feet and my boots got bespattered with blood. Francois leaped and brought back a bolting ewe, as the flock marched past, unconcerned.

The shepherd picked up a living bundle, writhing in the dust. With his broad knife he scraped and cleaned it, presently producing a big-headed, snow-white lambkin, which sought at once to stand up on its staggering feet.

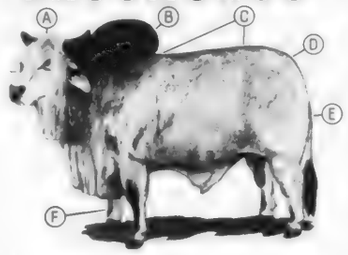
Francois tore a red rag in two, so as to mark with the same sign mother and baby. He properly introduced the youngster to the ewe, having her smell it all over, so that she could recognize it by scent and allow it to suckle at the next halt. But the mother kept bleating lamentably towards the receding cloud of dust.

"She's afraid of being left behind. For the time being, this very fear estranges her from the blood of her brood. If her maternal instinct is slow to awaken we'll tie her beside the lamb at the next halt." he explained as he folded the wet lambkin in sack-cloth and the freed ewe bolted at top speed towards the flock.

In my eyes, this business of subordinating the maternal to the herd instinct was the unpardonable sin of nomadism. But the pitiless law of wandering shepherds and gypsies alike goes even further. The halt, the lame, and the weak must be left by the roadside, for the collectivity has not the time for such laggards to catch up.

In front of us the slowly unfolding semi-

Standard of Excellence



A Head — Broad; face short.
B Hump — Ample in size, directly on top of shoulders, moderate in thickness.
C Back and Loin — Broad and level from hump to hooks.
D Rump — Long, wide, nearly level.
E Thigh — Broad, thick, full and deep.
F Legs — Moderately short, straight and squarely placed.

ABBA AMERICAN BRAHMAN BREEDERS ASSOCIATION
AMERICAN BRAHMAN BREEDERS ASSOCIATION
1208 LOUISIANA • HOUSTON 2, TEXAS

ONLY TUXEDO DEALERS HAVE MOLASSES FEEDS IN THESE NEW IMPROVED FORMS!

1 TUX-SWEET ROLLS for Beef Cattle, Dairy Cows, Sheep

45% molasses, 11% protein, plus valuable vitamins and minerals.

Convenient *non-sticky* rolls that handle easily, grind easily, positively will not set up. Sprinkle over roughage or mix with grains or supplements. Only small quantity required — 1 to 2 lbs. per head per day.

2 TUXEDO "Pro-Molas" ROLLS for high protein feeding program

35% molasses, 24% protein, plus valuable vitamins and minerals.

Non-sticky; very easy to handle. Developed especially for feeders who desire high protein and molasses combined in a single feed.

THE FEEDERS' SILENT PARTNER

THE EARLY & DANIEL CO.
CINCINNATI, OHIO
Our 73rd Year

TUX-Sweet Rolls
45% Molasses

circle of saw-toothed ridges, rising steeply from the plateau we were on, seemed an impassable barrier. But each time, a last bend would disclose some narrow pass which would enable us to pass into a likely boat-shaped, yet higher, plateau.

As our procession wound higher and higher, a number of sheep were found limping. Their hooves had got chinked by quick change and brutal successions of heat and cold, and the tips were worn to the quick from the rocks. The animals which were too exhausted to jog along were put in the back compartment of the wagon.

The hard-working dogs were also getting very weary. Their soft, bare paws had burst and they left blood-stained marks as they crept along. We were compelled to do their work for them, running hither and thither and jangling their little dog-bells at the sheep. This soon sent the strays scuttling back into line: in their simple minds the tinklings of the bells are associated with sharp fangs. In spite of this great fatigue and suffering, Bastian persisted in telling me that, up to now, the trek had been a bed of roses.

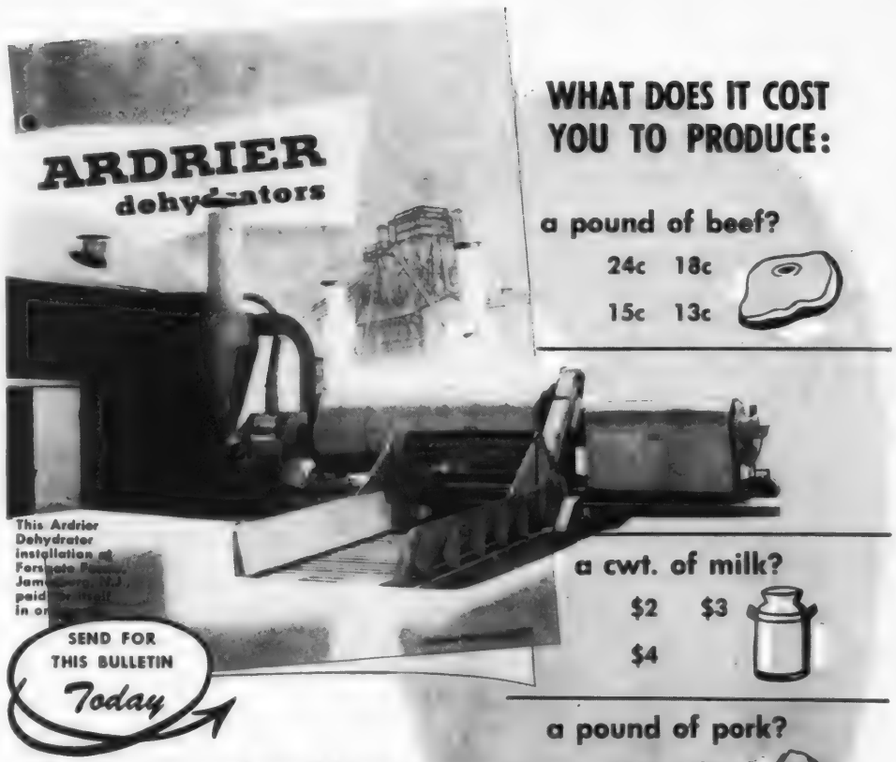
For the shepherds, the mountains were really at hand when they saw the animals start licking every flat stone on their way. Gradually, as the flock had trudged deeper and deeper into the mountainous heartland of south France, the dew had got less and less salty. The animals started crying for this needed material and coarse salt had to be spread, at the halts, over flat stones.

Before we tackled the final ascent, we recuperated for twenty-four hours at Bayas, a hamlet at the foot of the 9,000 foot Restefond pass. The sheep had to eat their fill. If they were to cover this last stretch hungry, they might climb over the steepest and barest rocks in their search for grass—and fall to their death in the process.

We had to climb, under a glaring sun, well over 3,000 feet through a barren landscape strewn with fallen rocks and great patches of snow. The sheep halted abruptly and stubbornly refused to forge ahead when the mule-track was found to be buried under snow, for the flakes had a most unpleasant way of clinging to their wooly fleeces. Whereupon, the domesticated billy-goats, whose long straight hair is well-nigh snow-proof, had to be urged to take the lead. Only when those hardy animals had tramped a dirty way through, did the ewes consent to advance.

The air was loaded with electricity and the animals began showing signs of nervousness. As the top of the lofty Restefond pass became buried in fog and clouds, we started pushing our charges for all they were worth, ever afraid lest some sudden summer storm would catch the flock huddled close in a narrow defile. Fog and lightning, what redoubtable enemies then!

In the nick of time, we reached the relative safety of the broad strategic road



Cut production costs . . . Raise better stock . . .

by feeding dehydrated forage—

"FLASH DRIED" with ARDRIER DEHYDRATORS

TODAY, more than ever, you must use the least expensive feed you can get in order to produce meat, milk, eggs, butter and poultry at a profit. Quick "flash" dehydration of forage crops at the peak of their nutritional value, is the answer to low-cost feeding.

"Flash dried" forage retains the highest possible percent of nature's proteins, carotene and minerals to provide green-pasture nutrition in winter rations. You save on grain feeding and there's no need to buy expensive supplements and concentrates. Compare the relative food values shown in the chart below and you'll see why dehydrated forage crops are your best bet for lowest cost feeding. And on-the-spot processing of your own crops eliminates transportation costs.

Farmers report that their Ardrier Dehydrators are paying for themselves in a short time. It will pay you to investigate all the advantages of "flash" drying your crops with Ardrier Dehydrators.

COMPARE THESE FEEDING VALUES

	DEHYDRATED ALFALFA	CORN	OATS	BARLEY
Protein	17%-24%	8.5%	12%	12.5%
Fat	2.2%	3.8%	4.6%	3.5%
Fibre	18.29%	2%	12%	8%
N. Free Extract	38.5%	68%	58%	60%

Find out how you can feed GREEN-PASTURE NUTRITION all year 'round . . . at low cost.

There's more to dehydrating forage crops than just simple drying. The "flash" drying principle of Ardrier Dehydrators provides almost instantaneous drying in intense heat, yet with the low product temperature that assures full preservation of protein and carotene values.

Mail the coupon today for literature describing all the economy features of Ardrier Dehydrators and find how to save on your feeding costs.

ARDRIER DEHYDRATORS are manufactured for ARNOLD DRYER COMPANY by THE HEIL CO.

ARNOLD DRYER COMPANY, Dept. 48113
3048 W. Montana St., Milwaukee 1, Wis.
Gentlemen: Please send me Ardrier Dehydrator Bulletin No. ARD-51405

Name.....
Street or RFD.....
City.....
State.....

Irrigation News

WEATHER: Made-to-order!

FROM ALUMINUM COMPANY OF AMERICA
Member of Association of SPRINKLER IRRIGATION EQUIPMENT MANUFACTURERS

VOL. 4 NO. 1 WINTER, 1953

Virginia Cattleman Tells How

PORTABLE IRRIGATION SYSTEM SAVES $4,000 THE FIRST YEAR!

Above: Lightweight Alcoa Irrigation Pipe being laid at Quarry Hill. Owner says the cattle and sheep seem to know what to expect—follow the system from one field to another.

Left: Quarry Hill, Hot Springs, Virginia, transformed to a fertile, green pasture—after two applications of water. Eight and six-inch Alcoa Aluminum Irrigation Pipe was used for the main line and the laterals.

Quarry Hill, Hot Springs, Virginia—Last year, in 1952, T. Kenneth Ellis of nearby Quarry Hill Farm saved $4,000 in feed bills by installing a portable irrigation system. Finding that his pasture lands were not producing sufficient silage for his cattle—even in normal years—he turned first to the purchase of feed which he estimated would cost him $4,000 a year.

Then Mr. Ellis made his decision to irrigate and within a short time had installed a system using Alcoa Aluminum Irrigation Pipe. Now, with the summer past, he tells of the results.

"It is without a doubt," writes Mr. Ellis, "the best piece of equipment I have ever bought for the farm. The response of the fields to the applied water is almost beyond belief. *Your system has certainly helped my farm!*" And he closes by saying, "I cannot tell you how pleased I am with it."

Cattlemen and farmers everywhere are learning one important fact about irrigation. While many farmers have prospered by irrigating during a *drought*, thousands of others are finding that crops harvested in a year of *normal rainfall* are doubled—even tripled—when sprinkler irrigation is installed.

Whatever your crop,
Wherever your state,
To add to your profit,
Just irrigate.

FREE BOOKLET

Mail coupon below for Alcoa's 1953 *Pipelines to Profit* Booklet containing helpful facts on planning an irrigation system for *your* farm.

Be sure you get genuine Alcoa Irrigation Pipe. Look for this yellow and blue Alcoa label.

Alcoa Aluminum

ALUMINUM COMPANY OF AMERICA
2137-M ALCOA BUILDING • PITTSBURGH 19, PA.

Name _____

Address (or RFD No.) _____

City (or town) _____ State _____

cutting across the Restefond pass. Hailstones almost as big as eggs began to lash painfully at the animals' muzzles. They stopped and lowered their heads, submitting meekly to the full fury of nature with a heart-rending resignation. We began thrashing them mercilessly to keep them going, but no amount of blows would make them budge.

"Quick, take off those hobnailed boots and throw away everything made of metal in your pockets!" yelled Marcel at me.

I could soon see his point as the whole ridge began to echo with formidable thunderclaps, endlessly reverberated from top to top and valley to valley. In the middle of the storm, I felt weak and bare and impotent, like the first man on the first day of mankind. With a blinding crash, lightning struck the top of the pass, a few feet above our heads. Scared out of their lives, the animals scattered like chaff in the wind.

At the risk of falling over some yawning precipice, concealed in the low-creeping fog, Marcel and I ran like mad, in our stockinged feet, to round up the terror-stricken animals.

"First the *floucats!*" shouted Jean from somewhere.

In that icy cloud, I pricked my ears for the flat sound of the rams' bells. But the fog deadened all the pitches in the flock's ring to the point of making them sound all alike.

By chance, I caught hold of an all-important ram by two of the three tufts of wool left unshorn on his back for this purpose. For all his fierce buttings, I shook his bell as if my life depended upon its ringing.

Suddenly, the North wind began to blow, wicked and cutting like a blade. The fog cleared away like a routed host. Soon, to the right and left, began echoing all together the loud and clear jangles of the other leaders' bells, which eventually recalled the scattered ewes.

I had thought that the ordeal would be over with the end of that steep climb. But, under a steady sleeting drizzle, the descent to the Camp des Fourches pasture, 1000 feet below the pass, was to prove a trying experience.

Along a steeply descending mule track, converted by the storm into a muddy torrent, I soon got all covered with a sticky clay. To put the brake on my altogether too rapid and neck-breaking descent, my crook being not nearly sufficient, I sought the smallest stone, the least chink on the track. When there were none, I just sat and slid.

Never in my whole life have I felt so lonely and so miserable. Only then, in my fear of getting left behind and my anxiousness of sticking my solitude to 2,300 other solitudes, could I fully grasp what meant the herd-instinct to the sheep.

At long last, rounding a last bend, we emerged into a vast circus of lofty mountains, topped by the dazzling whiteness of

the eternal snows. Two foaming torrents, leaping from rock to rock in a never-ending succession of rainbow-cascades, to join far below, enclosed a landscape of such breath-taking beauty that I all but forgot my weariness. I realized that journey's end was now really on hand only when the older animals of many treks had quickened the pace and tempo of their bleatings, scenting the pen near.

At mid-slope of the Cime du Voga, whose top was lost in the clouds, I could see three small cabins built of unhewn stones, with roofs nearly reaching to the ground. The largest, built against a moraine as a means of protection against avalanches and winds, was the shepherds' cabin. The remaining two were the stables for the pack animals. The sheep and goats had to be content with an open-air corral hard by. Half-frozen, I fell, rather than sat, upon a stool in front of the cabins. Hot coffee and warm food soon revived me.

Sheep and goats had already thrown themselves ravenously upon the rich, sweet grass and succulent herbs, ever-living the present fleeting moment, without fright, without thought, even though we had lost many casualties by the mountain-side. Such is the forgetfulness, the resignation, and fatalism of animals—and, for all I know, the overpowering and inscrutable wisdom of animals.

THE AUTHOR: Maurice Moyal is a French journalist who, in addition to being a roving correspondent of the *Agence France-Presse*, finds time to write for a number of American publications. Dr. Moyal is a graduate of the Paris Sorbonne University and also received a Ph.D. from there. During the war he was a Captain in the Free French Commandos serving from France to France via Dunkirk, Bir-Hakim, Benghazi, Tunis, and Monte Cassino.

JOHNSON GRASS

(*Continued from page* 60)

baling hay for the southern market. The hay proved so popular that it created a great demand for the seed and even the rootstocks. The Johnson plantation became such a gold mine that at the termination of their five-year tenure the Nashville gentlemen were outbid for a renewal by Northern capital. For better or for worse, that is the way Johnson grass got its start.

Dr. Jekyll

Someone has defined a weed as a plant out of place; that's exactly the case with Johnson grass. In animal agriculture it is a very valuable tool. In cotton and corn fields it is nothing short of a curse.

M. W. Carlton, manager of the Extension Department of the big Luling Foundation at Luling, Texas, fought Johnson grass as a pest until he was convinced he couldn't whip it so he decided he'd have to live with it and began using it. Now he is of the opinion that "for too long the research people have spent their appropriations, time, thoughts, and energies trying to find methods of controlling, or eradicating, Johnson grass. Grassland farming in the South would be given added impetus if some research would be

Roofing News

WEATHER: No longer a Worry! FROM ALUMINUM COMPANY OF AMERICA

VOL. 1 NO. 4 WINTER, 1953

ALUMINUM ROOF GOES UP FAST... BARN ERECTED IN TWELVE HOURS!

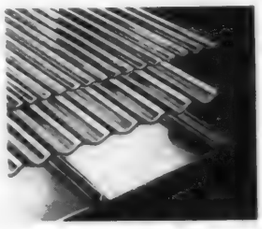
"Barn raising" friends applied 110 squares of gleaming Alcoa Aluminum Roofing and Siding during the afternoon. (left) Edith and Etta Engle have a combined total of almost a century of teaching in Holmes County schools.

Berlin, Ohio—In the morning, there was only rubble left from a fire that had completely destroyed the Engle sisters' nine-year-old barn . . . but by evening, a beautiful *new* barn of Gothic architecture—sheathed in lightweight Alcoa® Aluminum Roofing—stood in its place!

Part of the reason for the speed with which the barn went up was the number of people who worked on it . . . but much of the credit must go to the aluminum sheet. Alcoa Aluminum Roofing goes up fast! Its lightness made it easier to hand up, easier to hold in place, easier to fasten!

Tests prove, and thousands of farmers agree, that Alcoa Aluminum Roofing keeps barns as much as 20° cooler on hot summer days! Cattle reaches market weight sooner . . . poultry stays healthier . . . egg production remains high despite the high outside temperatures. Alcoa Roofing is corrosion resistant—needs no paint—won't red rust or discolor. Your nearby Alcoa dealer will be happy to give you any assistance or advice you desire—without obligation—whether it be information or estimation.

Choose from Two Thicknesses, Three Types, Two Finishes



When you select *Alcoa Aluminum Roofing*, you have the opportunity to choose from two thicknesses (either .019″ or .024″); three popular types (1¼″ corrugated, 2½″ corrugated or 5V-crimp); in two finishes (plain or embossed).

Alcoa Aluminum

ALUMINUM COMPANY OF AMERICA

Aluminum Company of America
2114-M Alcoa Building, Pittsburgh 19, Pa.
Please send me (free of charge—without obligation) the 1953 "Alcoa Farm Roofing Manual."
Name_____
Address_____
City_____ State_____

MORE and MORE
Farmers demand ARO
COMPLETE LINE
ARO has the lube-answer for every farm need! Just what you need . . . for faster, better lubrication. Reasonably priced . . . growing popularity! See Your Equipment Dealer. The Aro Equipment Corp., Bryan, Ohio.

"THE HUSKY"—Aro's 10,000 lb. gun. High pressure to crack plugged fittings. One-hand operation. (*Shown above*)

GREASE GUNS and FILLERS

Model 70962 ¼" Filler Nipple

Model 70961 ⅛" Filler Nipple

New Model 60032 Farmaster lubricator saves time by delivering more lubricant before recharging. Dispenses from original 25-35 lb. container . . . develops to 6000 lb. pressure. One-hand operation.

Model 2030-F Grease Gun, 1 lb. capacity, low priced, for general farm use.

Model 2643 Grease Gun . . . heavy-duty lubrication.

Aro filler assembly 70963 with nipple used with any hand-operated lubricator . . . extra service as gun filler.

Model 70530 Suction Gun for general use.

Model 60048 Gun Filler, 100 lb. capacity. Loads any hand gun equipped with Aro Filler Nipple.

Complete line of grease fittings.

LUBRICATORS

Air-Powered High Pressure Lubricator . . . 60 lb. bulk grease capacity . . . will operate off 1 h.p. compressor. Equipped with 10′ H.P. hose.

Double-Duty Lubricator, hand-operated. 30 lb. capacity. Pump develops to 2,000 lb. pressure . . . used as lubricator, or loading hand gun.

High-Pressure Hand-Operated Lubricator . . . pump develops to 5,000 lb. pressure . . . Can be refilled with entire 25 lb. container.

ARO *The Leader* IN FARM LUBRICATORS

Manufacturers of Lubricating Equipment for more than 20 years

devoted to use and management of this grass. The Luling Foundation's financial statements are adequate evidence of the folly of fighting instead of using it if it is already on the land. We use it for hay, for pasture, and even for silage."

The point of management that Carlton stresses is that Johnson grass must not be over-grazed—a point those who are trying to eradicate it will also find of value.

Every stockman you talk to, every bulletin on the management of Johnson grass, is emphatic on this point—that the surest way to get rid of the grass is to over-graze it. The continuous grazing prevents seed production at the same time that it brings about the exhaustion of the existing rootstocks, as the grass does not replenish its root reserves until after it has headed.

Most farmers who are now utilizing Johnson grass are simply managing volunteer stands. Few have had to go to the trouble of sowing it, but those who want to establish a new stand can profit from the experience of U. C. Jenkins, who manages a west central Alabama farm with some 3200 acres in pasture and hay crops. Jenkins broadcasts Johnson grass seed on a well-prepared seed bed in spring after frost danger is past, using 35 pounds of seed to the acre. In the fall he sows Caley peas in the grass, giving it a very light discing in the process. He depends upon the peas to furnish all the nitrogen the grass will need; after the first season he top-dresses the meadows with 400 to 600 pounds of 0—16—8.

Ted Besh, who manages the Sumter Farm at Geiger, Alabama, claims that Johnson grass needs much more nitrogen than can be supplied by the Caley peas alone, if one intends to grow three good cuttings of high protein hay. His practice is to top dress with 100 pounds of nitrate of soda or 50 pounds of ammonium nitrate after the first cutting.

In making hay Jenkins recommends cutting as soon as the first few seeds appear and curing in windows and as fast as possible. Like Besh, he uses a hay crusher and finds the implement ideal for this rank growing grass. He runs the rollers just close enough to crack the stems. Without the use of a hay crusher Johnson grass can seldom be baled before the afternoon of the third day after cutting.

Kirtley Brown, mentioned earlier, finds that he can get a good stand of Johnson grass by sowing in the spring or summer, anytime before the first of July, at the rate of 20 to 30 pounds to the acre on land that has already been seeded to wild winter peas. He fertilizes with 400 to 500 pounds of 0—14—10.

He cautions that while he has had no casualties from poisoning with Johnson grass, he has had a few cases of sickness when his cattle happened to graze very young grass right after frost.

At the Bluebonnet Farm of the Texas Agricultural Experiment Station, Mc-

Gregor, Texas, Johnson grass is drilled in the spring at rates as high as 40 to 50 pounds to the acre with sweetclover as a companion crop. At this farm it has also been found that combinations of oats, sweetclover and Johnson grass give both winter and summer grazing if the grazing is controlled and moisture is adequate.

The Alabama Black Belt Substation uses Johnson grass for grazing in July when permanent pastures are at their low point. If not needed for grazing, the grass is either cut and baled or stacked and fenced as a reserve for winter roughage. What would ordinarily be the last cutting of the grass is allowed to go to seed and remain on the field. Late in the fall the beef herd is moved into the field where the grass and the winter peas that come up beneath it support good winter grazing. When the grazing finally plays out the cattle get the Johnson grass hay. This program is calculated to carry one cow and her calf on three acres.

How It Rates

Johnson grass compares very favorably to other grasses as feed. Total digestible nutrients in the hay are 50.3 per cent, exactly the same as second-cutting timothy and good alfalfa: but it carries only 2.9 per cent digestible protein the same as timothy hay of all analyses, as compared to 8.2 for second cutting timothy and 10.5 for all analyses of alfalfa. Its nutritive

SAVE CROPS Water any field quickly at low cost with OK Champion pipe. Take water from well—lake or stream. Save crops—greatly increase yields. Get better grade products. Two men can move and re-connect ¼ mile OK Champion Pipe in 30 minutes. Quick connecting, flexible couplings. Send for FREE Circular.

CHAMPION CORPORATION
4791 Sheffield Ave. • Hammond, Ind.

OK CHAMPION
PORTABLE IRRIGATION

LIVING FENCES
NEW MIRACLE ROSE HEDGE
Beautify your home with Amazing Multiflora Rose Hedge at low cost—less than 5c a foot in quantities. Unexcelled as screen to hide unsightly view—ideal where stock-tight fence is needed. Cheaper than man-made fence—More attractive. Once established lasts a lifetime. Also full line of Fruit Trees, Berry Plants, Shrubs, Roses, Evergreens, Perennials. Write today for *Free Catalog!*

BABY SIZED TREES & SHRUBS
Just What You've Been Looking For! Numerous varieties from which to choose. Mostly 6 to 12-in. height—the popular sizes for experimental use. Write today for FREE Catalog!

CRIMSON KING MAPLES
Deep Crimson Foliage Never Fades
Opens deep crimson in spring and retains brilliance of color until leaves fall in autumn. Choice Patented Variety. Very popular. In demand everywhere. Hardy and easily grown. Adds materially to value of property. Also full line of Trees, Fruits, Shrubs, Evergreens, Roses. Write today for FREE CATALOG!

HYBRID LILIES New • Choice • Hardy
Get started in newest garden hobby. Build a collection of HARDY LILIES. Get BELLINGHAM, FIESTA, MID-CENTURY, RAINBOW HYBRIDS, many others—all reasonably priced. Blooming size bulbs. Write today for FREE CATALOG!
The Whitten Nurseries BOX 537, BRIDGMAN, MICH.

"I'VE BEEN CURING MEAT THIS EASY WAY FOR FIFTY YEARS and I still say the 'WRIGHT WAY' is best"

Wright's Ham Pickle and Wright's Condensed Smoke give a safe, sure, uniform cure and finest wood smoke flavor at low cost. It's no trouble at all. Just pack your meat in mixture one jar Wright's Ham Pickle and 28 pounds salt, either dry or brine form. After curing, brush on two coats Wright's Condensed Smoke. This cures, flavors 300 pounds meat. Wright's Smoke also fine for cooking, barbecuing. Products guaranteed. Dealers everywhere.

FREE BOOKLET
36 pages butchering, meat curing information, recipes, instructions. Free at dealers or write direct.

E. H. WRIGHT CO., LTD., 2435 McGEE, Dept. Q, Kansas City 8, Mo.

WRIGHT'S HAM PICKLE ★ for Sugar Curing ★ | WRIGHT'S *Condensed* SMOKE for Smoking and Barbecuing

ONLY PAPEC OFFERS YOU 3 MODELS

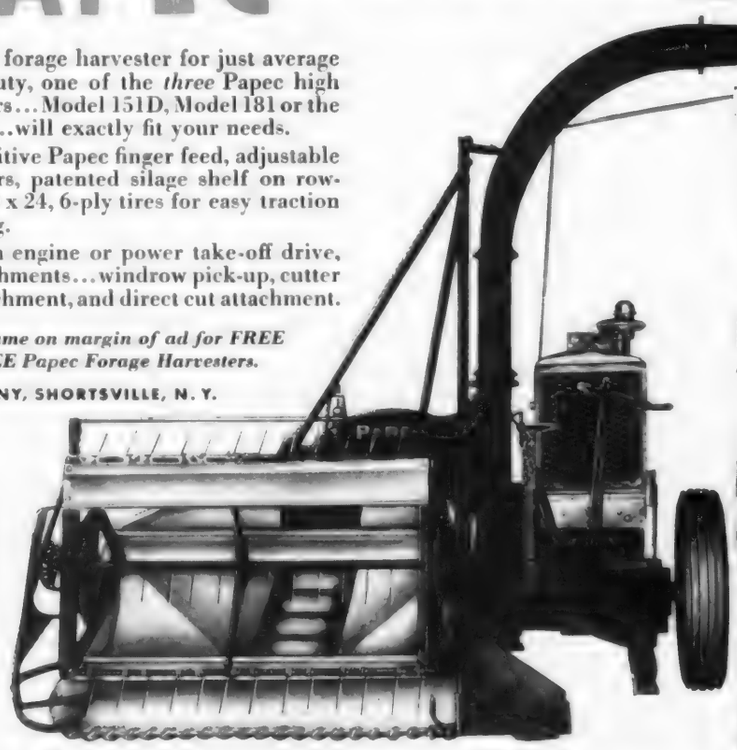
Whether you need a forage harvester for just average going or for very heaviest duty, one of the *three* Papec high performance Forage Harvesters... Model 151D, Model 181 or the BRAND NEW MODEL 161...will exactly fit your needs.

All three sizes have the positive Papec finger feed, adjustable pitch windrow pick-up fingers, patented silage shelf on row-crop attachment, and big 7.50 x 24, 6-ply tires for easy traction in rough, muddy, heavy going.

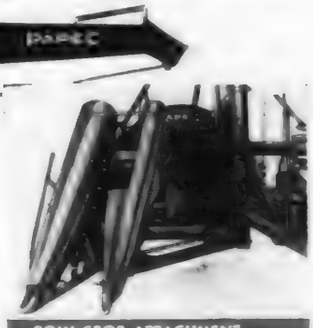
All three are available with engine or power take-off drive, and four easy-on-easy-off attachments...windrow pick-up, cutter bar attachment, row-crop attachment, and direct cut attachment.

See your Papec dealer or send name on margin of ad for FREE booklet describing ALL THREE Papec Forage Harvesters.

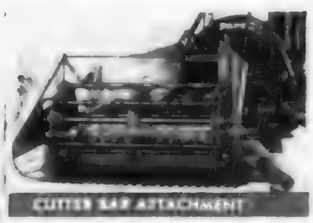
PAPEC MACHINE COMPANY, SHORTSVILLE, N. Y.



Model 161 with DIRECT CUT ATTACHMENT



ROW-CROP ATTACHMENT



CUTTER BAR ATTACHMENT

WINDROW PICK-UP ATTACHMENT

POUND for POUND PAPEC COSTS LESS THAN ANY OTHER MAKE!

FOR ALL 'ROUND PERFORMANCE YOU CAN'T BEAT PAPEC!

Jamesway

POWER CHORING

Throws down his silage

- Handles any grass or corn silage, frozen or unfrozen
- Mixes frozen silage with center silage, ready to feed
- Prevents silo accidents and cave-ins
- Can be moved from silo to silo
- Easy to service, any time

Save feed and time! Forget your frozen silage worries

Just push the button and watch your silage come down fast — finely chopped, evenly mixed, more palatable. The Jamesway handles your toughest unloading jobs—grass or corn silage, frozen or unfrozen. It breaks up chunks. Mixes feed thoroughly.

Your silage goes further because cattle eat it more readily. They waste less. Clean it up better. Convert it into more milk at less cost. You save labor, too . . . 200-400 hours every year. The Jamesway works while you do other chores. Shuts itself off at any pre-set time you select.

See this and other Power Choring equipment at your Jamesway dealer's now. Let him show you how Jamesway's complete line of stalls, pens, windows with Power Choring equipment gives you the most efficient, low-cost and sanitary dairy layout available.

For free folders, write the JAMES MFG. CO., Dept. FQ 1253 c/o your nearest branch office.

Water cups

Stalls and stanchions

Feed trucks

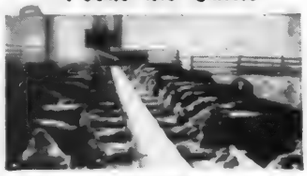
Jamesway

Ft. Atkinson, Wis. Mount Joy, Pa.
Los Angeles 63, Calif.

Cleans his barn

More farmers buy this Shuttle-Stroke cleaner because it installs easier, costs less, cleans better. Delivers direct to spreader without chains, gears or sprockets in the gutter. Handles once-a-day cleaning. You can clean by hand if power fails.

Feeds his Cattle



Makes cattle-feeding a simple, one-man job. Big capacity! Feed your beef and dairy cattle by just pushing a button. Rugged Shuttle-Stroke action delivers any grain or silage. Fully proven in the feed lot. Works in perfect combination with silo unloader.

Exclusive Power Ventilation

Keeps barn air fresh, clean. Reduces profit-robbing drafts, sudden temperature changes. Designed especially for farm buildings.

FIRST IN POWER CHORING

ratio is 1:16.3, meaning that for each pound of digestible protein it has 16.3 pounds of digestible nonnitrogenous nutrients. Comparative nutritive ratios for timothy and alfalfa of all analyses are 1:15.9 and 1:3.8 respectively.

There has never been any question about the palatibility of Johnson grass since the day cattle first started grazing it off the gulley in South Carolina and its deep root system and sorghum characteristics make it resistant to drought, two reasons why it makes excellent summer pasture. Earl Simmonds, an Ohio farmer, who has just about decided to quit trying to fight it in his bottomlands and use it for what it's worth, says his cows prefer it to alfalfa.

And Mr. Hyde

But despite the enthusiasm of stockmen for the grass it is still a scourge in row crop farming. One of Earl Simmonds' neighbors had a field of corn he cultivated three times last summer, then finally ran a turning plow through it after he found he had fought a losing battle with the pest. Thousands of acres of cotton and corn have been engulfed in its advance.

In recommending steps for the control and eradication of Johnson grass the University of Missouri makes a distinction between Johnson grass on overflow land and on land not subject to overflow. In the former case it advises "*control* coupled with the possibility of utilizing the grass. Permanent eradication is too costly if not impossible in view of the constant hazard of re-infestation from flood waters. On the other hand, complete *eradication* is much the more practical solution on lands not subject to overflow."

The control measures recommended for overflow land are simply the prevention of seed formation and the scattering of root parts. This can be accomplished by close grazing and by mowing. Scattering of the rootstocks can be prevented by avoiding unnecessary plowing or tillage of the infested fields.

Eradication falls under two general procedures —mechanical and chemical. The mechanical means include cultivation, mowing, grazing, and the use of geese. None of these can effect a complete eradication in less than two years.

Mowing and grazing have already been treated above.

Extermination by cultivation requires the persistent and continuous plowing or tilling of infected acreages until the plant is done for. No specialized tools are required. The key to the cure is frequent cultivation, the plants never being allowed to reach more than a foot of growth.

M. J. Norris, assistant agronomist at the Texas Bluebonnet Farm, suggests cropping with oats to produce a grain crop and following the crop immediately with deep plowing. The plowing should be continued during the summer months.

the frequency being determined by the growth of the grass. Plowing should always be done before the Johnson grass forms any heads.

Another method is to cut the Johnson grass for hay before heading and follow with the same plowing program as above; and a third method is to graze the grass heavily in spring and early summer and follow with plowing.

Harrowing to drag up the roots and pasturing these roots will help to increase the effectiveness of the kill and reduce the stand to the point where it will be economical to finish the remaining plants with chemical treatment.

Midwest Program

Ohio farmers plagued with Johnson grass on land other than overflow are being urged to try this program:

Mow or graze heavily.

Plow in July.

Work until time to sow winter barley, then sow the barley, fertilizing well. Barley is recommended rather than wheat because it can usually be combined before the Johnson grass that comes on in the spring is tall enough to interfere with it.

Plow as soon as the barley is off, keeping the ground worked through July and August; then sow barley again either for the grain or as a cover crop.

This should largely eliminate the Johnson grass with as little loss of crop as possible. There are any number of variations of this plan that might prove effective as long as the grass is grazed or mowed heavily and plowed and worked in midsummer.

Geese and Chemicals

W. G. Fritz, who manages the Joseph Matthews cotton farms at Senath, Missouri, uses a combination of the oldest and the newest methods of destroying Johnson grass. "We are very unfriendly to Johnson grass," is the way he understates his case. "We use hundreds of geese in the cotton to clean it out. It can be eliminated entirely in three or four years of the continuous cotton and goose combination.

"We find that Atlacide dissolved at the rate of about two pounds to a gallon of water and sprayed on the grass any time from the first to the twentieth of September will make a very good kill. We have used fifteen to twenty thousand pounds of

FARM MANAGEMENT FOR 37 YEARS

Services to Farm Owners Include:

SURVEYS REORGANIZATION BUDGETS
APPRAISALS ADVISORY ACCOUNTING
COMPLETE MANAGEMENT
FARM INCOME TAX RETURNS
PUREBRED LIVESTOCK ON COMMISSION
LIVESTOCK CONSULTANT
AGRICULTURAL ENGINEERING CONSULTANT

BURLINGAME, FIELD, PIERCE & BROWNE, INC.

45 West 45th Street, New York 36, N. Y., JUdson 2-1948
158 Main Street, Putnam, Conn., Putnam 8-6866

Write or Telephone for details

U. S. Register of Merit Dam L680. R. O. P. Record — 340 eggs. R. O. P. egg weight — 26.2 oz. per doz.

An air view of Gasson's Farm . . . 90 modern buildings on 244 acres

44 YEARS OF BREEDING

assures you a profitable strain

For more than four decades Gasson had consistently made high breeding records—eggs, body vigor, and livability. R.O.P. record of a recent year shows 83.1% of 1869 Gasson candidates qualified, highest among 133 white leghorn breeders. Gasson's hen-housed averages was 252 eggs, weighing 26.7 oz. per dozen.* Records up to 353 egs. 183 of the 184 males used in individual matings since 1944 have qualified for U.S. Register of Merit. We trapnest one of the largest R.O.P. candidate flocks in the U.S. U.S. Certified, pullorum clean, straight run and sexed chicks, 3 fine matings. Honest, liberal guarantees. That's why so many practical poultrymen buy Gasson's White Leghorn chicks.

*Hatchery and Feed, Feb. 1952

- Ohio—U. S. Certified Pullorum Clean hatchery
- 10,500 Pedigreed and wing-banded breeders.
- 32 individual U. S. R.O.P. male Matings
- 2,300 qualified U. S. R.O.P. females in breeding pens
- 100% live delivery; 95% livability guaranteed. All losses over 5% in 21 days, replaced FREE

FREE CATALOG

A postcard will bring it 40 fact-filled pages. (A reprint of last year's book.)

Send Your Order Now . . . 5% discount on early orders

GASSON'S POULTRY FARMS

BOX Q, VERSAILLES, OHIO

FREE if this book isn't worth many times its price **TO YOU!**

POULTRY PROFIT GUIDE

The most complete book ever written on *HOW TO MAKE MONEY* from poultry

A few chicks or thousands — POULTRY PROFIT GUIDE gives YOU every answer to every poultry raising problem. Not one phase of making money, cutting costs, improving health or increasing production is missed in this down-to-earth, easy-to-read volume by John P. Weeks, Extension Service Poultryman of Alabama Polytechnic Institute. You may have had years of poultry experience, yet this book will answer new questions, solve old problems, help avoid common errors. And you can read it without risking a penny—see offer below.

In 393 pages packed with practical information you'll find 79 charts, maps and actual sample forms for financial, inventory, expense, receipt and tax records. 152 diagrams and drawings—253 photographs and 32 full-color plates. Thousands of everyday questions and tested answers with sections for group study. A book so practical it is being used as high school and college text.

How to:

Select chicks for broilers and laying flocks.
Start & grow flock.
Figure housing and equipment needs.
Manage pullets on range.
Control poultry diseases.
Get more meat or eggs.
Save labor, cut, expenses.
Market poultry and eggs.
Classify, select, cull.
Incubate, heat, vaccinate.
Control parasites.
Finance, promote, manage.
Keep records, costs.

DO YOU KNOW? —the 8 basic points of egg profits —when lights should be used —how to reduce mortality rate —what type house to use —special practices for area —how to select a breed for profits —how much floor space for each chick —disease symptoms, control, treatment —how to control cannibalism —how often to cull . . . when —what is the NPIP —how to make more money —broiler production in your State —how to raise turkeys, geese, ducks —what chicken for a home flock.

READ AT OUR RISK! The answer to these and hundreds of other questions are in POULTRY PROFIT GUIDE—to help you make extra profits—to help you avoid common mistakes. Order your copy—keep it 7 days. If you don't see how it will be worth many times the low price, return for full and immediate refund. Mail the coupon today!

VULCAN PRESS
BIRMINGHAM 11, ALABAMA

VULCAN PRESS,
2312 Stephens Bldg., Birmingham 11, Ala.
Send POULTRY PROFIT GUIDE . . . $3.50 per copy. I may return in 7 days for full refund if not fully pleased.

NAME _____

ADDRESS _____

POST OFFICE _____ STATE _____

[ ] Check enclosed, send prepaid. [ ] Send COD plus del. chge.

install WATER LINES with

PLASTEX

Measure Marked PIPE

TRADEMARK

Equip your farm with permanent, laborsaving water lines that will never rust, rot, corrode or accumulate scale. Flexible PLASTEX PIPE is low cost, easy-to-install . . . ideal for drinking water, irrigation or drainage.

Ask for PLASTEX at your hardware, plumbing or farm supply store—it's Measure Marked for positive identification and easy, accurate measuring. Write for folder.

PLASTEX
SINCE 1939
PIPE & EXTRUSION CO.
404 Mt. Vernon Ave., Columbus 3, Ohio

this stuff every year for the past 10 to 12 years."

Atlacide is the trade name of a sodium chlorate weed killer. It is a fire hazard and should be stored and used with extreme caution. The manufacturer's directions call for application of 3 to 8 pounds of the chemical per square rod, either dry or as a spray; and as a spray they recommend much lighter applications than those used by Fritz—only one to one and a half pounds per gallon of water. Current price in the Midwest is around 16 cents per pound in ton lots, 18 cents in 100 pound drums.

Atlacide is a dilution of sodium chlorate and other chemicals that are introduced to reduce the fire hazard. Straight sodium chlorate can be used with even more effectiveness and at less cost than Atlacide, but it demands more careful handling. Three pounds of sodium chlorate can be substituted for five pounds of Atlacide.

As these chemicals have no sidewise action but work only downward it is important that they be applied with care to see that they are distributed evenly. Another factor in their effectiveness is rainfall. As they must be washed into the soil to do their work it is important that they be applied at a time when rainfall is imminent. It is usually recommended that the applications be made just before fall rains are expected. Their effectiveness should be apparent the following spring.

Another thing to remember is that these chemicals sterilize the soil for a period of time against all growth.

TCA is another chemical that is being used very effectively in the battle with Johnson grass. It is a powder that can be applied most effectively when dissolved in water and used as a spray at rates of 100 to 150 pounds per acre in 200 gallons of water. As this product now sells for about 50 cents a pound, it can be seen that it is limited to use on small patches of grass or in finishing off a stand that has been largely eradicated by other methods.

TCA is not a fire hazard, is more soluble in water than sodium chlorate, and does not sterilize the soil for as long a time as the latter—three months is about its limit. But it is very caustic to the skin, and corrosive of equipment as are also chlorate and Atlacide.

Both of these chemicals are slightly poisonous, although cases have been reported of stock being pastured on sprayed fields without injury. Be sure to read the label on the container and follow the recommendations to obtain the best results when using any of these chemicals.

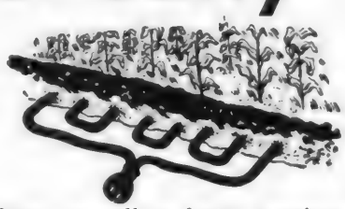
That's the story on Johnson grass. It's a tough enemy but a warm friend and many a farmer, particularly among stockmen, is rapidly coming to the conclusion that since he can't whip it he might as well use it.

THESE TWO CELERY PLANTS are both 26 days old. They were grown from the same seed in immediately adjacent flatbeds. The bed that produced the bigger, faster-growing plants, like the one at the left, was heated with G-E heating cable sets. The smaller plant is typical of those grown in the manure-heated bed.

G-E HEATING CABLE SETS MAKE THE DIFFERENCE.

Get to market early

General Electric heating cable sets help produce healthy seedlings in a hurry



G-E heating cable sets can help you get your produce to market early—in plenty of time for top-price selling. Use them to supply beneficial bottom heat in hotbeds, cold frames, and greenhouses to speed seed germination, force more seeds to germinate, and produce more uniform, as well as faster-growing, plants.

G-E heating cable sets are simply laid below the soil surface, and plugged into a 110- or 220-volt outlet. A thermostat can be used to make the operation automatic.

Cold Weather Uses Give Double Value

During cold weather, use your heating cable sets to:

- **Protect pipes, valves, and pumps from freezing and bursting.**
- **Guard against roof leaks and eave damage caused by ice accumulations.**
- **Keep watering troughs from freezing, and keep the water at drinking temperature. Keep feed additives fluid.**
- **Keep concrete floors warm and dry in barns, kennels, central farrowing houses, and poultry houses. A convenient heat source for brooders, too.**

You'll use this portable "put-it-where-you-want-it" heat source the year around. Ask your hardware or farm equipment dealer for G-E heating cable sets, or write for further information to Section D115-1230, Construction Materials Division, General Electric Company, Bridgeport 2, Connecticut.

You can put your confidence in—

GENERAL ELECTRIC

Model 80 wire-tie—If you store or ship hay, bale straw for the commercial market, or just plain like wire-tied bales, see the "80". It packages up to 100 tons a day. Exclusive twist lies flat on the bale.

Model 77 twine-tie—the baler you'll see on more farms than any other make. Packages up to 10 tons of hay an hour . . . ties thousands of bales without a miss. It's the favorite of custom operators and farmers who must have highest baling capacity and complete reliability.

Now you can choose from

3 great New Holland balers!

The *sensational* Model 66 twine-tie Newest addition to a famous line... Costs hundreds of dollars less—makes hay baling practical on almost any farm!

Now, no matter what you bale or where you bale it . . . no matter whether you feed, sell or custom bale . . . you can pick a New Holland to fit *your* job. For New Holland's "66" now joins the famous "77" twine-tie and the mighty "80" wire-tie.

This gives you a complete choice of balers—priced from $1665!*

In price, size, the compact "66" beats all other self-powered, square-bale, pick-up balers . . . and will package up to 6 bales a minute, up to *7 tons of hay an hour!*

With speed like this you can bale all your hay just at the right stage of curing. Your stock gets up to 50% higher feed value . . . you keep more of your farm profits.

See your authorized New Holland Dealer for a demonstration of any one of the 3 great New Holland balers. Or mail the coupon below. The New Holland Machine Company, a subsidiary of The Sperry Corporation.

*Suggested list price F.O.B. New Holland, Pa., for Model 66, not including Federal Excise Tax on tubes and tires.

Get what you pay for—buy the best! New Holland is the only Twine certified by the U. S. Testing Co. to meet rigid standards of length, quality and strength. For wire, choose New Holland, too.

NEW HOLLAND

"First in Grassland Farming"

New Holland, Pa. • Minneapolis • Des Moines • Kansas City • Brantford, Ontario

Free Catalog Illustrated catalogs give complete details. Write: New Holland Machine Company, 912 Cedar St., New Holland, Pa.

Name_____

Street or RFD_____

Town_____ State_____

Check Model interested in: ☐ Model 66 ☐ Model 77
☐ Model 80. I would like free demonstration on my farm. ☐

SHOW YOUR CHAMPIONS IN HANDSOME, WHITE LEATHER HALTERS

"No Finer Made"

Packed in cellophane-covered box.....$11 ea. Postpaid
Plain Russet Halter, cellophane-covered box, $10 ea. Postpaid
Rope Halters, Stitched Leather Nose Lead, $1.25 ea., $12 doz.

SHOP OUR CATALOG NO. 53-2
Write us for a copy if you do not have one

EVERYTHING THE STOCKMAN NEEDS

Coconut Oil Shampoo	Scotch Combs
Horn Weights	Leaders
Halters	Brushes
Coat Dressing	Tools & Veterinary Instruments
Copper Branding Irons	Ear Tags
Neck Chains	Tattoo Outfits
Branding Tables	Castrators
Branding Iron Heaters	Allen Grain Busters
Pails and Buckets	Lariats

QUALITY LEATHER GOODS
Wholesale Distributors of
Globe Laboratories' Remedies and Medicines

BREEDERS SUPPLY & EQUIPMENT COMPANY
P. O. Box 1360 1465-7 W. Main St. Lexington, Ky.
"THE BIG LIVESTOCK SUPPLY HOUSE"
HEADQUARTERS FOR HARD-TO-GET ITEMS

THE CHARBRAY

(*Continued from page* 69)

started now with a 3-year testing out period.

4. That registrations should continue as they are, with Charbray certificates showing the percentage of breeding; and when the typical Charbray percentage is decided upon, a replacement certificate would be issued for the animal selected and certificates of breeding on the other percentages.

The following motion was passed by the Board of Directors: "Resolved that the program of breeding a 13/16 Charbray be recommended to the members at the noon meeting for a 3 year minimum, a 4 year maximum, and that on January 1, 1956, a Charbray certificate be issued on the 13/16 Charolaise-3/16 Brahman as a true Charbray, provided such animal has proved itself to be a typical Charbray."

The American Charbray Association and the American Charolaise Association are run jointly, with headquarters at Weslaco, Texas. Harl Thomas, of Raymondville, Texas, and Andrew M. Askew, of Houston, Texas, are president and vice-president, respectively, of both associations. The International Charollaise Cattle Raisers Association has headquarters in the Esperson Building, Houston, Texas.

The French Herd Book is located at Nevers, France, 9 rue Gambetta. The export group, Syndicat Central d'Exportation, is located at the same address.

Charbray in the North

Although the Brahman and its various crosses are having their greatest popularity in the South and Southwest, the North, stronghold of the English breeds, is being slowly but surely infiltrated.

Morris Cohon of New York City, who raises cattle on his farm at Portland, Pa., is just as enthusiastic as the Southerners about the Charbray. Cohon went to Texas to buy Santa Gertrudis, but he saw an aged Charolaise bull at the King Ranch in Kingsville and "was instantly struck by its beef characteristics."

Later, Cohon visited Harl Thomas' ranch in Raymondville, Texas, and got a good look at a Charbray. He says, "I was amazed at which I saw. The Charbrays develop earlier, are easy keepers, and attain fabulous weights at early ages. I purchased four 7/8 Charbray heifers, a Charbray bull and then a purebred Charolaise bull and a purebred Charolaise heifer. The next year, I purchased eight more Charolaise heifers.

"These cattle were shipped to my farm at Portland. The temperature there, during the winter months, goes down to 20 below zero, and these cattle were kept in an open shed.

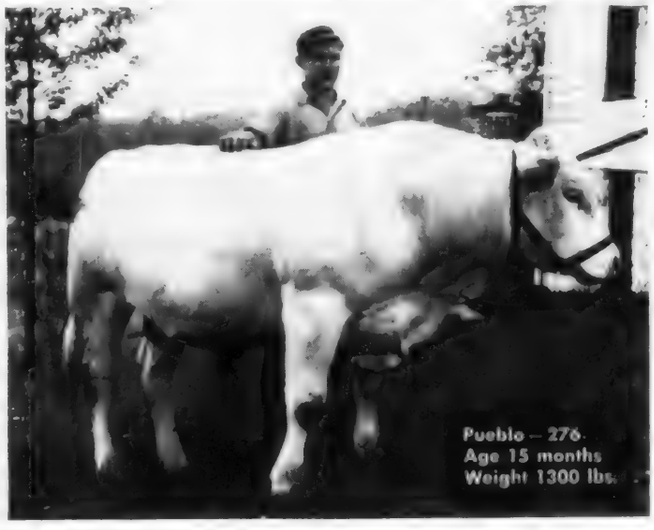
"All I can tell you is that the Charbray bull at 16 months weighed 1,560 pounds and the heifers at the same age averaged 1,250 pounds. I now have a purebred Charolaise bull calf, 10 months old, which weighed 960 pounds last week, and a purebred Charolaise heifer, 11 months old, which weighs 980 pounds. My original Charolaise bull, which is now 2½

PURE-BRED CHAROLAISE CATTLE

The Heavy Beef Breed that Matures Early

Pure-bred Charolaise cattle, the beef breed of France, attain enormous weights at an early age. When bred to Brahman cows, they have produced the Charbray—probably the largest cattle on earth. When crossed with any other breed, they consistently produce faster growing calves which mature quickly, to heavier than normal weights.

Write for descriptive folder about this breed of cattle



Orders taken for spring calves—either bulls or heifers.
(Besides the Pure-bred Registered Charolaise, we will have some Pure-bred Registered Charbray for sale this Spring.)

TURKEY RIDGE FARM

JAMES CLANCY, Manager MORRIS COHON, Owner
NEAR — PORTLAND, PA.
P.O. Box R.F.D. No. 1 • Bangor, Pa. • Telephone Portland 104 B-21

years old, weighs well over a ton."

Cohon, who seems as thoroughly sold on Charbray and Charolaise as any cattleman ever becomes, has this to say to his fellow-cattlemen in the North who are sometimes hesitant to invest in cattle that have proved popular in warmer Southern climes, "I find that the Charbray and Charolaise are adaptable to both extreme cold and extreme heat. During the winter, they develop a heavy fur and seem to prefer to be out of doors.

"I have raised Hereford and Angus cattle for years and my experience with Charolaise and Charbray convinces me that as beef animals, these will finish off three or four months quicker than any other beef breed."

Across the nation from Cohon's farm, in another cold-weather zone, lives H. C. Wear, a cattleman who has ranged as far as Australia to learn all he can about the cattle business generally and cross-breeding in particular. He has successfully raised Charbray on his H-D Ranch at Brandon and Chivington, Colorado, where sub-zero winter temperatures are commonplace.

Dr. C. H. Langford owns a ranch at Bandera, Texas, where Charbray would be expected to do well, but he has sent cattle to Wyoming, Montana, and neighboring states and reports they are thriving like Eskimos in the biting winters.

In the Far West, Harold W. Hunt, owner of the Hunt Ranch at El Centro, California, echoes the Texan cheers for the Charbray. Hunt states emphatically that his 3/8 Brahman and 5/8 Charolaise cross produces an "animal that has no pink eye, no cancer eye, more size for age, that will fatten at any age, has the highest quality meat, and stands hot weather better."

There is a low note in this high-pitched praise for the Charbray and the Charolaise. H. A. Furgason, general manager of the Norris Cattle Company at Ocala, Florida, a confirmed Brahman breeder, prefers his Brahmans to the Charolaise. Furgason has Charolaise, Charbray, and Brahman and states flatly that he is still sold on the Brahman. He doesn't like Charolaise at all, but he makes a big concession for a genuine Brahman man in admitting: "Crossing the Charolaise and the Brahman straightens out the backline and gives you bigger-boned animals. The Brahman's just a little bit thin-boned.

"When you get the good qualities of the Charolaise—the straight backline and the big bones—and those of the Brahman, mixed just right, you've got a good animal in the Charbray," he admits, in spite of his whole-hearted belief that Brahmans are head and hump over all other cattle.

The Charolaise blood appears to nick well with almost any breed. Out in California, on the Hotel Jeffery Ranch, Bill Jeffery has crossed about everything in

Model 40 Electric Pump for use with underground tanks. Rapid delivery. Self-Priming.

Model 782 Compressor. ½ h.p. 10 gal. tank, automatic pressure control. Wheels or skids.

Double-Action Hand Pump Model 966. Delivers 20 gal. per min. Carries 8 ft. hose.

Plan now to have

YOUR OWN SERVICE STATION

It's really quite simple and inexpensive to have *your own* service station—a handy spot where trucks, tractors and implements can be refueled, lubricated and kept in good order. The savings in time and depreciation will pay for the cost; and the safety achieved through better liquid handling cannot be reckoned in dollars. Tokheim will provide the equipment: an electric gasoline pump, an air compressor for tire inflating, greasing, painting and dusting, and a hand pump that handles gasoline, oil and similar liquids. You can locate them to meet your needs. Plan *your* station now. See your Tokheim representative or write factory.

General Products Division
TOKHEIM CORPORATION
Designers and Builders of Superior Equipment Since 1901
1626 WABASH AVENUE FORT WAYNE 1, INDIANA
Canadian Distributor: H. Reeder, 205 Yonge St., Toronto

"Your advice saved my farm"

"Gentlemen:
"Last year you predicted a drop in cattle prices to hit in the fall. I was heavily in debt and figured you knew your business, consequently I sold all my cattle at a good profit. Your prediction saved my farm. Some people now say I was smart, most say I was lucky, and do you know what I do? — I recommend your service."

We have received many similar letters from other subscribers to the

DOANE AGRICULTURAL DIGEST

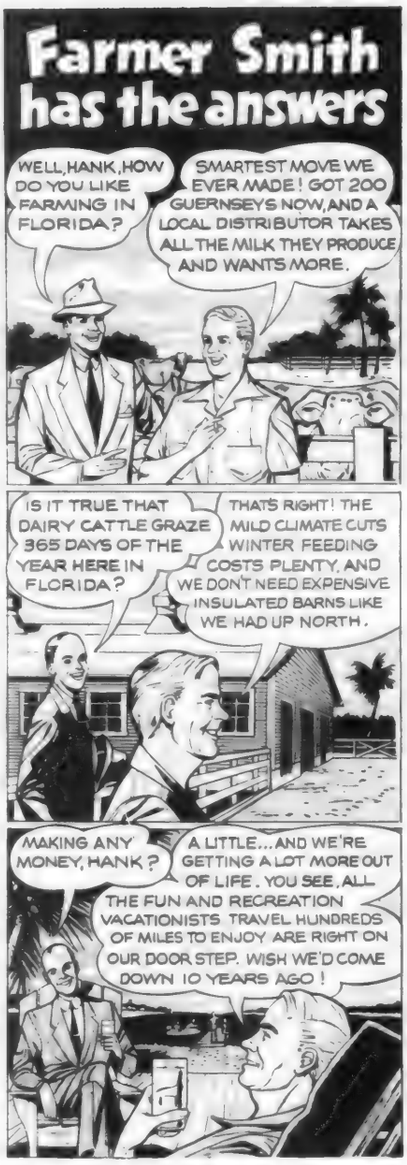
Thousands of other farmers selling and producing hogs, milk, poultry and eggs, sheep, corn, wheat, soybeans, oats and other farm products also profit from Digest advice. The twice-monthly reports interpret trends, predict outlook on prices, markets, surpluses and shortages ahead, and advise on new methods. Farmers, ranchers and businessmen in every state, in Canada and Mexico follow the practical advice of the Digest because *it pays.*

Write today for FREE SAMPLE REPORTS

and see how the Digest can help you make more money from your farm.

DOANE AGRICULTURAL SERVICE, INC.

Box 241, 5142 Delmar Blvd. **St. Louis 8, Missouri**


Farmer Smith has the answers
WELL, HANK, HOW DO YOU LIKE FARMING IN FLORIDA?
SMARTEST MOVE WE EVER MADE! GOT 200 GUERNSEYS NOW, AND A LOCAL DISTRIBUTOR TAKES ALL THE MILK THEY PRODUCE AND WANTS MORE.
IS IT TRUE THAT DAIRY CATTLE GRAZE 365 DAYS OF THE YEAR HERE IN FLORIDA?
THAT'S RIGHT! THE MILD CLIMATE CUTS WINTER FEEDING COSTS PLENTY, AND WE DON'T NEED EXPENSIVE INSULATED BARNS LIKE WE HAD UP NORTH.
MAKING ANY MONEY, HANK?
A LITTLE... AND WE'RE GETTING A LOT MORE OUT OF LIFE. YOU SEE, ALL THE FUN AND RECREATION VACATIONISTS TRAVEL HUNDREDS OF MILES TO ENJOY ARE RIGHT ON OUR DOOR STEP. WISH WE'D COME DOWN 10 YEARS AGO!

Don't wait! Combine profitable farming with happier living. Check up now on the opportunities Florida has for dairymen, poultrymen, truck farmers, livestock raisers and nurserymen.

If you know modern farming methods and have ample capital, there may be a brighter future for you in fast-growing Florida with its constantly expanding markets.

Come down for a restful holiday this winter and look around for your place in the sun. Meanwhile mail coupon for fact-packed 28-page illustrated booklet on Florida farming.

FABULOUS Florida **WARM in Winter! COOL in Summer!**

STATE OF FLORIDA
5310-C Commission Bldg., Tallahassee, Fla.

Please send me FREE copy of "Farm Opportunities in Florida."

Print NAME _____

Print ADDRESS or R.F.D. NO. _____

Print POST OFFICE (town) _____ **STATE**

the cattle kingdom to prove that the Charolaise is an exceptional animal. He bred an 860 lb. Jersey cow to his Charolaise bull and got a half-breed cow weighing 1280 lbs. He bred this cow to a Charolaise bull. The result of this mating was a ¾ Charolaise-¼ Jersey steer, weighing 1260 lbs. at 21 months. The carcass of this animal weighed 744 lbs., a dressing percentage of 58.5 per cent. It graded commercial.

The breeder apparently does not need to deal in purebreds of either breed to make profits, I. A. Krusen, of Zephyrhills, Florida, for example. Krusen started out with "cracker cows" 18 years ago. He was buying and selling cattle as a matter of routine in 1947 and happened to buy some cows and calves from a friend who said the calves were valuable because they were almost half Charolaise. The name "Charolaise" didn't ring any bells for Krusen.

He says, "I didn't pay any attention to that and sold all but two of the smallest calves for veal. They were late calves and wouldn't have brought much anyway, so I put them out in pasture and forgot them. In 1948, they were put out in the pasture with grade Brahman heifers of their own age. I noticed they had good bone and conformation and were heavier than the other heifers of their own age.

"They had calves in 1950 and, even though their calves were less than one-quarter Charolaise, you could ride in the pasture and pick them out. They were the two heaviest calves in the whole pasture. The same thing happened in 1951."

How Much?

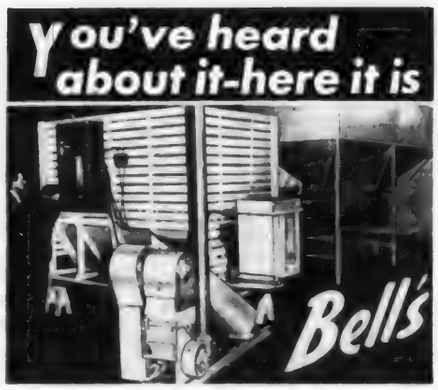
The demand is good for both Charolaise and Charbray, although no hard and fast price scale is followed by breeders. Average prices at recent sales were: purebred Charolaise bull, $5,000; a 15/16 calf, $3,000; a ⅞ calf, $2,000; a ¾ blood calf, $1,000; the price on a ½ blood animal ranges upward from $500.

The price goes up according to the amount of Charolaise blood the animal has, but some breeders believe the value of the Charbray (which is either the ⅞ or ¾ bloods in the above scale) will gradually move higher. Howell B. Jones of Houston puts in a word for the worth of the Charbray by noting that he uses ¾ and ⅞ Charbray bulls on common cows and gets a 15 per cent increase in calves.

Jones, who is selling all the bulls he can raise now and can't supply the full demand, also reported that at a sale of two-year-olds in Texas in March, half-breed bulls sold at prices up to $1,000, ¾ bloods up to $2,000, with ⅞ bloods going for $2,500.

The Future for the Charbray

The future of the Charolaise crosses, especially those with the Brahmans, seems



FEED-O-MAT

FULLY AUTOMATIC FEED HANDLING SYSTEM

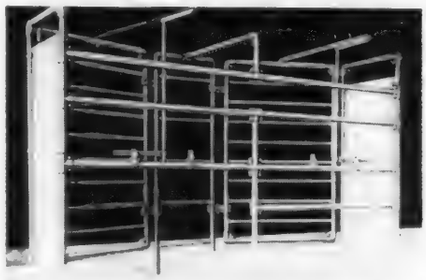
Empties Cribs and Bins—Blends ingredients for Balanced rations—Grinds, Mixes and Delivers Feed to the point of use—

ALL THIS WITHOUT HAND LABOR! PUSH THE BUTTON—the electric Automatic Control takes over! Time Switch automatically stops Feed-O-Mat at end of predetermined grinding time . . . Any combination of corn or grains can be handled with equal ease with this time saving piece of equipment on your farm. Available now at extremely moderate cost. Drop a card for full information, and name of your nearest Bell Distributor.

THE C. S. BELL CO., MFRS.
HILLSBORO, O. - Since 1858

CUT the COST

of your milking operation with Louden's NEW tandem-type stall



Streamline your milking operation with Louden tandem-type stalls. You get more efficient production with less labor, expense — net profits automatically increase. Made with high carbon steel tubing, this new LOUDEN stall is built stronger — lasts longer. Easy to install.

Get these FREE plans

Before you build a milking parlor—be sure you get Louden's tested Milking Parlor Plans. Louden's complete line of Milking Stalls are suitable for any arrangement—any method of dairy operation—handling any number of cows. Easier to install—easier to keep clean. Send for special FREE booklet of milking parlor plans and equipment. See how to handle cows with less labor. See your Louden dealer or write

THE LOUDEN MACHINERY CO.
3212 N. Court Street, Fairfield, Iowa

LOUDEN

THE GRADE-A LINE OF BARN EQUIPMENT

assured in the South and West. In the North, where the English breeds have established themselves as dependable feedlot animals, the Charbray and the Charolaise face a long, uphill, competitive battle. The Northern packers and consumers are educated to believe that to have quality a carcass must be well-covered with white fat, which all the Brahman crosses more or less lack. Until the crossbreed associations can educate the consumer otherwise, the breeding of the crosses in the North will be confined almost wholly to those who want to try something new just because it is new. The general run of cattle raisers will not be willing to take a penalty on the market, and few farmers are in a position to carry on the extensive feeding experiments necessary to determine just how well, in competition, the crosses will do under the peculiar feeding conditions of the North.

THE AUTHOR: Bill Rivers hails from Gainesville, Florida. After a hitch in the Marine Corps during World War II, he entered Louisiana State University where he is now teaching journalism and working on a Ph. D degree. A prolific free lancer, his articles have appeared in a number of farm publications and in such magazines of general interest as *The American Mercury, Everybody's Digest, Popular Mechanics* and *Ford Times*.

BULK HANDLING

(*Continued from page* 50)

ator can lift the lid on the feeder without getting off the tractor seat.

"The watering tank should be equipped with a centrifugal pump powered by either a gasoline or electric motor—we use a small gas engine—so that the farmer can drive up to the water tank, drop in the supply hose and let the motor do the work while he goes on about other chores. And another important thing is to have a large enough outlet so that the waterers can be filled in a matter of seconds. The usual thing is to install a one-inch pipe and then stand around watching the water trickle out of the tank."

At eight weeks the pigs are weaned and put in groups of 50 onto alfalfa-ladino pastures each of which has a self-feeding corn crib. The pasture supplies a large part of the protein and so cuts down on the handling of supplement and the cribs are filled at harvest time with a farm elevator. Williams uses round cribs 16 feet in diameter and 16 to 20 feet high each with a flue running through it and a center stack for air drying the corn. With corn and pasture in the field, the job of feeding the pigs is reduced to hauling water and a little mineral supplement.

In moving his feeders and waterers, Williams could use a trick developed by the Bernard brothers who have to move their turkey equipment about every three days. The Bernards have fastened to the tractor draw-bar a long steel hook that looks like a giant size of the hook that used to be used with a hook and eye lock on the barn door. About midway down the bar of the hook a rope is attached. Between the runners of each of the houses, waterers, and feeders is a strand of four or five loops of number nine wire.

Check these Advantages the SEAMAN ROTARY TILLER WILL BRING TO YOUR LAND

The SEAMAN Self-Propelled Rotary Tiller. Tills a swath 7 feet wide. Gasoline or diesel powered.

Write SEAMAN MOTORS, Inc. for complete information on the subjects checked and, while you are writing — ask for your FREE copy of "Benefits of Rotary Tillage", an interesting, comprehensive illustrated book based on nearly two decades of experience in the rotary tillage field.

The SEAMAN TILLIT. 3 feet in tillage width — but what efficient use it makes of tractor PTO power! The lowest investment to get the profit of farm-scale rotary tillage. Needs only 23 HP tractor for excellent operation.

SEAMAN MOTORS, INC.
331 NO. 25th ST. MILWAUKEE 3, WISCONSIN

Advantages of Seaman-tillage

To build or renovate pasture grassland

To prepare "strip" tillage in legumes for wide row corn planting

To get maximum soil aeration

To get medium, fine or coarse tilth as desired

To till and plant in one trip

To reduce "rain risk" in tillage

To mill and mix in green manures or fertilizers to best depth

To increase humus; speed nitrogen cycle

To eradicate noxious weeds, unwanted grasses

To control water and wind erosion

To break or clear new land

To level rough land

To eliminate dead furrows

To work muck land

To till and form raised beds for row crops in one trip

To work stony, hilly uplands

To eliminate plow sole

To use less irrigation water

To work soil too hard to plow

To reduce soil compaction from multiple tractor trips

To reduce drought risk by maximum moisture retention

To dry out soggy low areas

To till right up to fences

To prepare erosion-resistant mulches

PRODUCE MORE EGGS AT LESS COST WITH

ROSELAWN
BIG TYPE LEGHORNS

WRITE TODAY! LEARN HOW TO CUT FEED COSTS—
GET MORE EGGS—INCREASE PROFITS

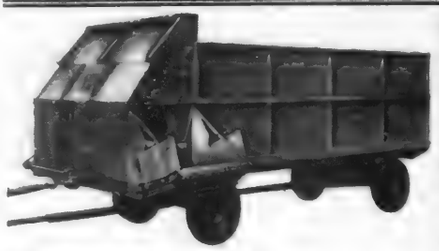
Order from Roselawn and SAVE 2 WAYS ON FEED. Cash in first on our breeding for better feed efficiency and second on Roselawn's New Feeding Method. Customers report feed savings of 20% to 50%. You too can enjoy these same big savings and also get more than 30 years of breeding for more eggs, bigger eggs, better eggs, greater vigor, larger birds, longer life. BIGGER PROFITS.

$6.00 PER BIRD PROFIT—BIG DISCOUNTS

Customers report profits up to $6.00 per bird. You, too, will enjoy better results from Roselawn Breeding. BIG WORTHWHILE DISCOUNTS for EARLY ORDERS. WRITE TODAY and EARN THIS SAVING ALSO.

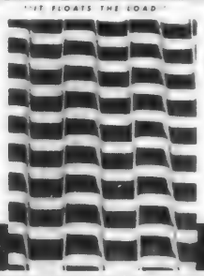
FREE CATALOG
REDUCED DISCOUNT PRICES
Now Ready
WRITE TODAY

ROSELAWN POULTRY FARM, R.R. 10 T, DAYTON 7, OHIO



Automatically
UNLOAD
• chopped hay
• ear corn
• corn silage

CONVEY-O-MATIC
"IT FLOATS THE LOAD"
CROSS CONVEYOR

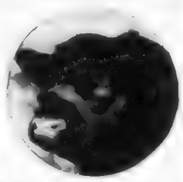


Fill feed bunks on the move automatically. Operated from the tractor seat! Clears any traveling feed table ensilage cutter or blower! Only the Helix Cross Conveyor lets you handle corn silage, chopped hay and ear corn as well as all small grains. Automatically mixes and meters out the load evenly at a wide range of unloading speeds.

Continuous moving floor automatically sweeps itself clean. Patented non-corrosive steel conveyor belt won't pack or clog. P. T. O. driven! Transmission and roller chain drive on cross conveyor gives smooth, quiet operation. Elevator folds away for easier driving in tight places. Write today for complete information about this amazing new Convey-O-Matic unloader and cross conveyor combination. Limited number now available. Address Dept. 22-C.

HELIX CORPORATION CROWN POINT INDIANA

LOOK AT THIS
SHOW RECORD!



Half of all Grand Champion Steers in all eight post-war International Live Stock Shows.
Seven times grand champion yearlings over all breeds in all eight Chicago Feeder Shows.
Four times grand champion load of feeder calves in past five National Western Stock Shows in Denver.

Buy SHORTHORNS—POLLED SHORTHORNS

AMERICAN SHORTHORN BREEDERS' ASSOCIATION

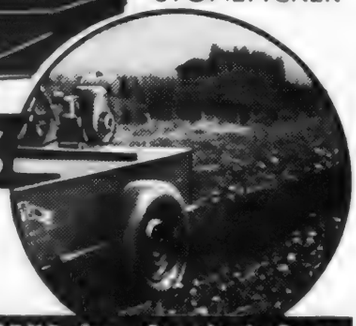
Dept. FQ, 7 Dexter Park Ave. Subscribe to "Shorthorn World", $2.00 yearly Chicago 9, Ill.

PIXTONE

THE New MECHANICAL STONEPICKER

Now you can remove stones from your fields easily.

removes fieldstones mechanically
FASTER THAN 20 MEN CAN DO



Here, at last, is a machine that will pick up, carry and dump bothersome stones from your fields. PIXTONE clears up to 4 acres a day—saves labor, eliminates cause of much implement breakage—makes plowing, cultivating and harvesting easier—increases productivity. New FREE FOLDER explains how Pixtone works, shows pictures of Pixtone in action. Write today. Address Dept. D.

BRIDGEPORT IMPLEMENT WORKS, Inc., Stratford, Conn.

Bernard simply backs up to one of the pens, drops the hook over this wire, and drives off. When he has pulled the pen to the new location he lifts up on the rope to disengage the hook and drives off to latch onto another piece of equipment.

Feeding Bulk to Cattle

Wendell and Paul Morton are two Boone County, Indiana, farmers who feed out around 1100 head of heifers and steers each year. The amount of bulky feed they handle is rather staggering when you consider that each animal consumes two tons of silage and fresh cut forage, 30 bushels of corn, and 250 pounds of supplement each year in addition to the pasture it feeds itself. During the winter, the Mortons keep a dump truck running from the various trench silos scattered over the farm, hauling silage to a mixing building where it is dumped. The silage is then reloaded by means of a bulldozer and conveyor onto self-unloading feeding wagons which are then pulled onto the scales at the grannery. Here corn and other grain, concentrates, and minerals are added from overhead bins and the weight of each ingredient is punched on the scales ticket. Molasses is then pumped onto the load from a metered tank so that the exact amount can be measured as it is pumped on.

Since the cow is a very inefficient mowing machine and since she tends to skip the tough grasses and bloat herself on the tender, young legumes, the Mortons keep their forage harvesters running through the entire pasture season and haul chopped grass to their cattle.

Mass-Handling of Fertilizer

Bulk handling of fertilizer in trucks is another area in which a strong mind can take the place of a strong back. Max Sauerbry working with the Litchfield Farms, near Fort Dodge, Iowa, has come up with a new twist that not only saves muscle but also saves money. Their soil tests show they need a given number of pounds of nitrogen, phosphorus and potassium for corn, oats, or for meadow seedings. No two fields or crops are alike and with several hundred acres of crop land to get over every year, they faced a complex problem of purchasing, warehousing, hauling, farm storage and eventually field spreading the correct amounts.

So they figured different possible ways of applying the fertilizer. Here are some alternative methods:

	Pounds	Fertilizer Analysis	Total Nutrients	Cost per Acre	Saving per Acre
1.	500	12-12-12	60-60-60	$24.70	
2.	300	0-20-20	0-60-60	$10.87	
	185	33- 0- 0	60- 0- 0	9.21	
			60-60-60	$20.08	$4.62
		BULK SPREADING BY TRUCK			
3.	100	60% Phosphate	0-60- 0	$ 4.51	
	100	60% Muriate of Potash	0- 0-60	3.30	
	185	33- 0- 0	60- 0- 0	9.21	
			60-60-60	$17.02	$7.68

"I am certainly well pleased with my steel building in every way"

says Theo. Maage

Ostrander, Minnesota

EARLY in the summer of 1952, Mr. Maage had a galvanized steel building erected on his farm near LeRoy, Minnesota. He writes, "When I replaced my old wooden machine shed, I decided that it would be with steel. Although I did not consider any other material, I know now that the cost of my 36' x 80' steel machine shed was no more than if I had used some other material.

"I am certainly well pleased with my steel building in every way. It makes a very neat appearance, and it won't have to be painted which is a big saving. Besides storing machinery for a 390-acre farm I find it useful in many other ways. I can do my repair work under cover, and with the big doors in both ends it's a simple job getting a load of hay or grain in out of the weather. The clear floor with no posts makes it easy to move machinery around and get in and out easily."

Farm buildings, constructed of U·S·S Galvanized Sheets provide secure, dependable "weather-ability" all year round. For machinery and hay storage, cattle housing, or a versatile all-purpose structure, steel is your best bet. Find out *now* why you get the most for your money when you invest in a factory-made steel building manufactured with long-lasting U·S·S Galvanized Steel Sheets for roofs and side walls and a U·S·S Structural Steel framework.

United States Steel Corporation produces high quality U·S·S Galvanized Sheets and structural steel which our customers manufacture into durable farm buildings. Your request for information will be forwarded to the manufacturers of these buildings and you will hear directly from them.

USS

UNITED STATES STEEL

SEND THIS COUPON FOR FURTHER INFORMATION

Agricultural Extension Section
United States Steel Corporation
Room 2819-V, 525 William Penn Place
Pittsburgh 30, Pa.

I am interested in steel buildings for the following:

- ☐ machinery storage
- ☐ grain storage
- ☐ hay storage
- ☐ cattle shelters
- ☐ dairy barns
- ☐ poultry shelters
- ☐ other.....

Approximate size or capacity.....

Send information to:

Name.....

Address.....**Town**.....

County.....**State**.....

Try this revolutionary, new, **ATKINS**

Chamfer Saw Chain

for the easiest cutting you've ever known!

AVAILABLE NOW
FOR EVERY MAKE OF CHAIN SAW!

IT'S THE CHAMFER
THAT DOES IT!

- Cuts Straight
- Cuts Smooth
- Cuts Fast
- Stays Sharp
- No Wandering
- No Bouncing
- No Snaking

SEE how this new design hugs any cutter bar . . .

SEE how it rips or crosscuts any wood . . .

SEE how it coaxes itself smoothly into any cut . . .

SEE how it can be sharpened easily and quickly by anyone . . .

SEE your Dealer!

ATKINS Silver Steel SAWS

ATKINS SAW DIVISION

Borg-Warner Corporation • Indianapolis 9, Indiana

BW

Forecast local showers when you want them, where you want them, with Rain Bird Sprinklers. They're engineered to provide even distribution of water at less cost, less labor, and are famous the world 'round for their faultless operation.

To stop erosion, for higher crop yield, let Rain Bird solve your irrigation problems.

Be sure that the system you buy meets the minimum requirements for design, installation and performance of a sprinkler irrigation system, as approved by the American Society of Agricultural Engineers.

Our research and planning department is at your service. Consult us today without obligation.

NATIONAL **RAIN BIRD** SALES & ENGINEERING CORP.
AZUSA, CALIFORNIA

RAINY SPRINKLER SALES, 1633 WEST LAKE ST., PEORIA 5, ILL.

In each of these three methods the same quantity of total nutrients is applied. Where soil and crop conditions vary the amount can be upped or lowered to fit. This treatment was applied this fall before plowing and a small amount of starter fertilizer in the row will be applied at planting time. The above prices were figured at bagged prices so that the $2 or $3 per ton savings in bulk, plus no warehousing, hauling and storage, will more than offset the extra trip over the field in the use of the different materials.

So Litchfield Farms have a chance to save as much as $768.00 on every 100 acres of crop by this use of high analysis materials and bulk spreading. Where anhydrous ammonia or solution are more available or cheaper than ammonium nitrate they could be used. The off-season application is advantageous to fertilizer people —so it makes them happy. With the exception of the starter fertilizer, there will be no heaving of fertilizer bags.

Rules for Handling Bulk

In talking with these midwestern farmers about their bulk handling problems, several general rules have been developed.

Don't move it if you don't have to. A lot of bulk movement can be avoided by planning your pasture program so that the pigs get most of their protein from alfalfa and ladino. Another farmer might find it best to hog down his corn rather than pick it for the livestock and haul it to them. Poultry farmers have found that it's cheaper to let the pullets go out after their green feed than to cut it for them.

The next rule would be: *Lift it once.* Chopped hay can be stacked in the field in Indiana so the farmers there use a forage harvester, field stack the hay, and let the cattle get it in the field. Big feeder cribs are another example and so is the self-feeding stack silo. Dairy farmers can save a lot of double moving by dumping the manure from the barn directly into the spreader and some of them save lifting by converting the regular silos into self feeders.

Let machinery do the job, would be the third rule. At today's cost of labor, a machine can usually do the job cheaper, safer, and faster than a man. A self-unloading wagon, a load lifter on a truck, a baled hay elevator, hay and silage blowers, an automatic feed mixer, a milk can hoist, or a barn cleaner can all do a faster, cheaper job than a man if they fit the farm enterprise. And that's where planning comes in; a farmer has to know his problem thoroughly and then select the machinery that will do the best and cheapest job for him.

THE AUTHORS: William Yaw was born and raised on an Iowa farm. After graduating from Iowa State College and doing a stint in the army, he secured his Master's degree from Purdue, his thesis being on the labor involved in feed handling. After leaving Purdue, Yaw became an associate of the late C. M. Long in The Farm Clinic and, with his partner, Marshal Allman, has carried on the work of this organization since Mr. Long's death. Grant Cannon is Managing Editor of *The FARM Quarterly.*

CAPONIZING FOR PROFIT

(*Continued from page* 78)

and hooked out the glands. She produced a lot of capons with her crude operation, but she also killed a lot of birds, and many of those that did survive still had part of the gland inside them and retained their rooster-like appearance. Such birds are called "slips."

Another primitive method was to use a six-inch piece of hollow bamboo or the thigh bone of a bird. This was threaded with a long straight horse hair, doubled with the loop extending out one end, and the two ends of the hair extending out the other. When the bird was opened, the loop was maneuvered around the gland and pulled tight.

Since the days of fingernail and horsehair methods of caponizing, there has been a long history of instrument development which has brought us the surgical steel knives, electric cauterizing knives and clamps, spreaders, hooks, and probes which we use today.

How To Caponize

George Bowing, a professional caponizer who has operated on as many as 75,000 birds in a single season, says, "The best advice for the beginner is to take it easy; don't make a hard job out of a simple one." And to see Bowing operating at full speed, caponizing over 100 birds an hour, the job does seem simple indeed. Not even the birds seem too flustered by the operation—it's over before they know what is happening.

Bowing suggests that the beginner make his first few operations on roosters which have been killed for Sunday dinner. The rooster is feeling no pain by this time and caponizing won't harm the meat in any way. After he has mastered the knack of the operation, he can graduate to live birds.

The ideal time to caponize is when the cockerels are 6 to 8 weeks old and are somewhere between the size of a quail and 1½ pounds. Experts often operate with special equipment on young chicks for hatcheries to produce started capons, but then that is why they are experts.

For a day to a day and a half before the operation, the birds should be kept in a dark room without feed or water. This allows the feed already eaten to

"CAPON—Electric"

Improved New 1953

ELECTRIC WAY, so simple children do it. Commercial year round business. Experts make 80 and over per hour. Six New Built-in Improvements. Longer Life Elements. Soft Flexible Electric Cables. Without tearing or twisting of delicate parts. Press Button, the rooster becomes a permanent Capon. Greater Profits when beginners make their own Electric-Made Capons. With Electric Dry Cells, Batteries, or Light Socket. Profit and pleasures are yours. No Obligation. Free Bulletin explains. Write to:

HOWARD BEUOY

No. 25, CEDAR VALE, KANSAS, U. S. A.

Standard and heavy-duty models. Sizes for any need.

DUNHAM'S SUPERIOR FEATURES

Long life metal bearings guaranteed for FIVE YEARS.
Bolted frame construction.
Manual control of wheels (by hydraulic jack) available if your tractor has no hydraulic pump.
Timken tapered roller bearings in transport wheels.
Screw crank allows pressure to be placed on either front or rear gangs.
Extra-heavy (10 gauge) blades. Adjustable gangs.

- ***Tried, Tested, Farmer-Accepted.***
- ***Tops for Tough Discing Jobs.***
- ***Better, Lower Cost Seed Beds.***

Different depths obtained by changing Quick Pin to various holes in slide bar. Each hole gives ½" adjustment. Depth control is necessary on one-way systems.

All-Purpose Packer-Seeder

Culti-Packer

THE DUNHAM COMPANY
Originators of the Culti-Mulcher
Dept. Q-123 Berea, Ohio

THE DUNHAM COMPANY
Dept. Q-123, Berea, Ohio

Please send literature on Dunham Tools checked; also name of nearest Dunham Dealer.

☐ All-Purpose Packer-Seeder ☐ Rotary Culti-Hoe ☐ Culti-Lift Tools
☐ Transport Culti-Disc ☐ Culti-Mulcher ☐ Culti-Harrow
☐ Sprocket Pulverizer ☐ Culti-Packer ☐ Culti-Treader

Name_____

Address_____

City_____ State_____

EST. 1846 THE DUNHAM CULTI-LINE

Dunham CULTI-LINE

KROP-KARE *CARES FOR THE CROP THAT CARES FOR YOU!*

With acreage allotments again with us (and more to come), the goal in farming today is not volume—it's how much PROFIT you will net on what you raise! And nothing knocks the props from under POSSIBLE PROFITS as quickly and as needlessly as hay or grain wasted or down-graded because of improper storage or handling.

Don't take a chance! See how KROP-KARE DRYING, HANDLING, AND CONDITIONING EQUIPMENT can pay for itself in short order—and then go on earning good hard cash for you. Mail the coupon today!

J. R. MAYNER AND COMPANY
702-Q Richland Trust Building
Mansfield, Ohio

Send me full, free information on:

☐ Peirson-Moore Farm Crop Driers
☐ Batch Driers
☐ Krop-Kare Drying Fans
☐ Corn Conditioning Cribs
☐ Moisture Testers
☐ Grain Conditioning Cribs

NAME_____

ADDRESS_____

• DEALERS' INQUIRIES INVITED •

BOYT
DES MOINES, IOWA
HIGH QUALITY
at a price you can afford

RIDING EQUIPMENT
Riding equipment for farm use, pleasure and show. English and Western saddles, bits, bridles, spurs. Stable blankets. Girths. Caveson sets. Other horse equipment.

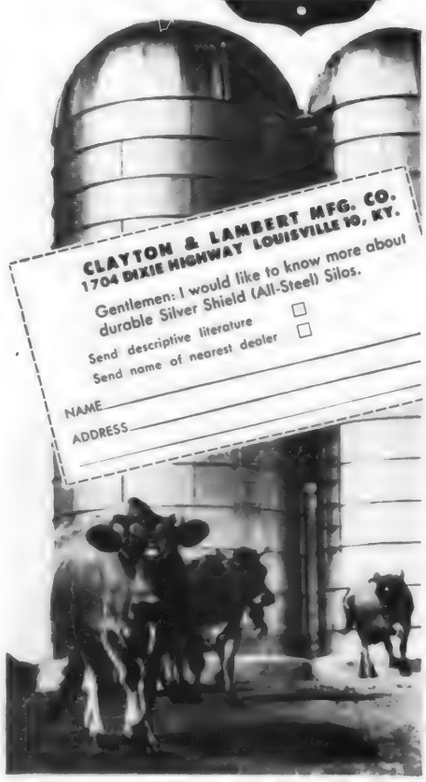
HALTERS
Baby beef, cow, calf or bull show halters. Complete selection of stockmen's supplies. Cow blankets in all sizes.

OTHER BOYT ITEMS

Ever since 1901, Boyt has been making the strongest work harness in America. Also available are horse collars, body belts, tarpaulins, hunting and fishing equipment, and many other items of particular interest to the farmer and sportsman.

FREE CATALOGS — Leading harness, hardware and implement dealers feature Boyt items. Three catalogs available. Specify whether interested in farm items, sporting goods or riding horse equipment. Write The Boyt Co., Dept. L., Des Moines, Iowa.

C&L
SILVER SHIELD SILO



CLAYTON & LAMBERT MFG. CO.
1704 DIXIE HIGHWAY LOUISVILLE 10, KY.
Gentlemen: I would like to know more about durable Silver Shield (All-Steel) Silos.
Send descriptive literature ☐
Send name of nearest dealer ☐
NAME
ADDRESS

digest and lowers the intestines in the body cavity so that the glands can be removed easily; it also helps prevent bleeding.

The birds should be stretched out while the operation is performed. This can be done by a helper or by the use of a special table, rigged with straps or thongs for stretching and tying the bird's wings and feet. A new device is a bow with cords for tying the wings to one end and the feet to the other. Stretching the bird pulls the thigh away from the ribs, where the incision is to be made.

"When you've got your bird all stretched out with the breast toward you," Bowing says, "pluck away the few feathers around the ribs. A beginner should also moisten the other feathers so that he can push them away from where he will cut and have them stay put. With the feathers out of the way, you can locate with your finger the space between the last two ribs right over the curve of the thigh joint. Now place the point of the knife between these last two ribs and with a firm, steady pressure, draw it forward toward you along the curve of the ribs, bearing down hard all the time. Be sure that the point of the blade passes between the ribs, entirely separating them, but don't go too deep or you might damage the intestines. The cut should be about one inch long. If your blade is sharp and if it passes through on the first cut, there won't be enough bleeding to notice, but if you make more than one cut or if you try to enlarge the incision, you'll cause bleeding."

With the incision made, a second piece of equipment, the rib spreaders, can be inserted and clamped open as far as possible without tearing the incision. Through this opening can be seen the living, pulsing organs of the bird covered by a thin, glassy membrane. For the beginner, this first view of the live, functioning innards is a little frightening. The membrane is carefully torn away with the sharp end of the tearing hook and then the flattened end of this third piece of equipment is used to press the intestines from the glands.

The glands are small yellowish objects shaped like very small navy beans, attached to the back just below the front end of the kidney and close to the backbone. "When you look in there with a good light behind you," Bowing says, "you will see a blue artery running between the glands. Be real careful of this. If you bruise, tear, burn, or puncture this artery, the bird is a dead one."

With the intestines depressed, the gland removing forceps can be slipped in and their hollow, triangular ends used to clasp the testes. The gland is twisted to the right or left several times and then drawn from the body where the operator can cut the twisted cord and membrane half-way between the gland and where it is attached to the bird. Experienced caponizers sometimes remove both glands from the same

DRIVE UP! DRIVE 'EM IN! DRIVE AWAY!

with the
DANUSER
POST DRIVER

Save time, labor, and money; fence faster and easier with this revolutionary post driver. Tractor or trailer mounted, power driven, one-man operation. Single lever controls broad-faced 200 lb. driving weight. Pounding at the rate of 25 blows per minute, will quickly drive steel or small wood posts. Pivot adjustment for leveling on uneven ground. Tested and approved by tractor manufacturers.

WRITE FOR LITERATURE pertaining to your model tractor, or specifications on **TRAILER-MOUNTED DRIVER.**

Manufactured by
DANUSER MACHINE CO.
508-09 East 3rd Street • Fulton, Missouri
"Contributing to Farm Mechanization"

LOOK, MOM... NO HORNS!

And it didn't hurt—done with PŌL. Just brush on PŌL and it forms a tough film fast. Horn buttons soon peel off. Won't ooze to harm calf's face. No danger to cow when nursed. Easy for one man alone to do the job. Each $1.25 bottle dehorns 12 calves or kids. Be a pal . . . use PŌL. Your Dr. Hess dealer has it. Dr. Hess & Clark, Inc., Ashland, Ohio.

Dr. HESS
PŌL
Scientific Farm-aceuticals Since 1893

NEW Land Clearing Tools Remove Trees, Brush F-A-S-T

The proven best and cheapest method of clearing trees up to 12" base diameter and all brush is with the Johnson GRUBBING TONGS. ALL TREES — Maple, Beech, Locust, Willow, Sycamore, Oak, Spruce, Hemlock, fruit trees, etc., come out easily, quickly, permanently — ROOTS AND ALL! No pick or mattock necessary. Hook the TONGS around the growth and pull. No freezing or slipping. Heavy steel construction. Better than bulldozing or log chains. Every farmer needs one. If your dealer cannot supply you, order from us. PERFORMANCE GUARANTEED OR MONEY REFUNDED. Send check, M.O. No C.O.D.'s. Write for folder.

MODEL 52
(Trees up to 5" Dia.) use with any tractor. Wt. 19 lbs.
$9.85 ea.
Add $1.45 P.P. & Ins. West of Miss. $1.95

MODEL 121
(Trees up 12" Dia.) For larger than 5" trees requires tracklayer (Crawler) or half-track tractor, or wheel type with 10,000 lbs. draw bar pull. Wt. 36 lbs.
$19.75 ea.
Shipped Express Collect

RE-BO MFG. CO. 329-B Madison Ave. New York 17, N.Y.

side, in which case they remove the bottom gland first. The beginner, however, usually finds it easier on himself and the bird to remove the upper gland and turn the bird over for a second operation to remove the other.

When both glands have been removed, the bird is released and, because of the stretching before the operation, the skin slips down over the incision, forming a natural bandage for it. The cut is never sewn. "We never use antiseptic on a bird, but we keep our instruments clean and we never caponize a sick bird," Bowing says. "Occasionally you will find one that develops gas bubbles under the skin when it's healing. All you have to do is to prick these with a clean needle and the bird will be all right. The new electric equipment cauterizes the wound as it cuts."

With electric equipment, which operates off any light outlet or can be powered by a car battery, the only changes are in the knife and the gland removing forceps. Instead of a blade, the knife has an electric element which heats to 1500 degrees Fahrenheit and burns a bloodless incision between the ribs. The forceps, too, have an electric element which can be switched on after the glands have been grasped. The heat element burns through the cord and membrane, cauterizing them as it does so, and the gland can be lifted out. With either electrical or surgical equipment the operator must be very careful not to damage the intestines.

Capons are generally fed out for full growth, as distinguished from broilers, which are pushed hard for early gains. This makes it possible for the capon raiser to make the most of high vitamin, cheap range feeds. Green oats, rye, barley, ladino, and alfalfa, or any tender forage makes good feed for the birds on the range. A good growing ration is also given them free-choice. The birds are usually range-fed for about five months. About two weeks before they are marketed, they are put on a fattening ration to give them finish. For this, nothing can beat good, yellow cornmeal.

During the feeding and fattening period, a capon will make somewhat faster gains on slightly less feed than hens or roosters. In a test at the Kansas Experiment Station, White Rock capons which were caponized at 12 weeks weighed over seven pounds at 32 weeks, as compared to six and one half pounds for roosters. During this test, they had eaten 43 pounds of feed as compared to nearly 46 pounds for the cockerels. A rule of thumb is that they will eat one-third as much as a turkey and almost as much as a hen.

When the capon is ready for market he is covered with a fine layer of creamy yellow fat. A good test of primeness is to look under the wings to see if any blue veins can be seen. If he is in finished condition the veins should all be hidden under the firm, yellow fat.

GEHL

GIVES YOU MORE in '54

so easy—a boy can wheel it in!

A GREAT NEW CHOPPER with the NEW QUICK SWITCH

from mower-bar
to windrow pickup
to row crop

MORE '54 Features: All-steel cutter bar • Forged all-steel flywheel • Self-aligning bearings on feed rollers • Adjustable axle • Quick Switch • 2-row corn head.*

Once again . . . GEHL — America's leading Forage Harvester—steps out IN FRONT to give you "More in '54" —a GREAT new chopper with more exclusive features . . . more advanced design . . . *more for your money.*

With Gehl comes the New *Quick Switch* from Mower-Bar to Windrow Pickup to Row Crop. Now you can really beat the weatherman by switching from hay to standing grass silage or corn, in only 5 minutes!

See where you get "More in '54" in the NEW Gehl Chopper. See the complete Gehl line . . . made by *specialists in feed and forage handling equipment for over Half a Century.*

Move up to GEHL! Join your dollar-wise, chopper-wise Gehl neighbors. Learn why they're proud to own a Gehl . . . why more farmers own Gehl than any other independent chopper!

*Watch for Announcement on Gehl's 2-Row Corn Head

GEHL offers a toast to your health, happiness and prosperity. —*A glass of milk with every meal—for every member of the family!*

FREE! Write Today...

Gehl Bros. Mfg. Co., Dept. MM-590, West Bend, Wis.

	CHECK
Send me the full story on your NEW Gehl Chopper with the NEW *Quick Switch*	☐
I'd like a copy of your book, "Streamlined Methods of Forage Harvesting"	☐
Mail me your new booklet, "How to Rate a Forage Harvester." Important features to compare before buying	☐

Name.....

Street or R.F.D.....Town.....

State.....Acres Farmed.....

Science in the Barnyard

By DR. HESS

Be your own Santa Claus this month. You can actually discover hidden profits right on your own farm through stricter control of disease. Start by heading off mastitis in your herd. Be on the alert for telltale danger signals. Watch out for chilling cows . . . plenty of straw bedding is a lot cheaper than a sick cow.

At the first Mastitis sign cut down on the grain ration. Get milk production lowered. Then fight the germs with the new Dr. Hess PEN-FZ miracle drug treatment, using one tube for each diseased quarter. PEN-FZ contains 150 milligrams of nitrofurazone, the wonder drug used so effectively on wounded men in World War II . . . combined with 150,000 units of penicillin in a free-flowing lanolin base for year 'round use. PEN-FZ has two years of research and practical testing behind it . . . the most effective treatment for mastitis yet discovered. It kills all four kinds of mastitis germs and is especially effective against "staph" and "strep" germs which are so hard to kill. Write for free folder on "PEN-FZ"—by the makers of NFZ, used so successfully against "coxy" in poultry and necro" in hogs.

In winter months, even hogs need their appetites toned up. Just the thing for this is Dr. Hess Hog Special. Keeps them eating at the trough . . . and makes big, profitable porkers out of skinny runts. It's good, too, for pregnant sows and growing shoats. Hogs love this vitamin-mineral supplement.

Poultry have their problems in winter, too. When they're confined in laying houses, eating dry mash day after day, it's easy to get "off feed." Egg production drops and so do profits! Dr. Hess Pan-A-Min will keep your flock singing, eating, and laying. It is a tonic and mineral supplement, good for every bird on your place. A 35 lb. pail is enough for 210 birds for two long winter months.

DR. HESS & CLARK, INC.
ASHLAND, OHIO
Scientific Farm-aceuticals Since 1893

"You'll just love this new Dr. Hess PEN-FZ! It's the grandest thing yet for mastitis!"

Custom Caponizing

Some farmers, like George Bowing, who are skilled at the job of caponizing do custom work on the side for their neighbors and for hatcheries. Their charge for this work will, of course, vary, but 10 to 15 cents a bird or $25 a day is fairly standard. With surgical instruments, a good caponizer can operate on 30 to 40 birds an hour: with the electric equipment he can caponize 60 to 100 birds in the same time.

The Hormone Bird

A few years ago it was discovered that diethylstilbestrol, a female hormone, can be injected into the neck of a cockerel in pellet form and bring about a capon-like appearance. The effects of such an injection last about five weeks and then the bird recovers his male characteristics. They are marketed as "hormonized birds" and usually sell for a cent or two above the price of roasters, but for less than the surgically created capon.

The bio-chemical creation of capons is particularly useful for breeders who want to hold a large number of cockerels until late in the summer before selecting their breeding stock—they are more docile during the summer and the culled birds sell for more. In the United States, birds which have been implanted with not more than 15 miligrams of diethylstilbestrol can be sold. In Canada, they do not permit these birds on the market.

A very important problem in hormone treated birds is the proper placement of the pellet to avoid its being included with any edible portion of the bird. The recommended practice is to implant the pellet under the skin at the base of the skull so that any unabsorbed material will be discarded with the head. The Food and Drug Administration have and will continue to seize any birds which are marketed with unabsorbed diethylstilbestrol pellets in an edible portion of the bird.

The Motherly Capon

The capon develops into a taller bird than the rooster and does not grow a proud red comb, wattles, or spurs. The neck and saddle feathers are narrow streamers compared to the feathers on a rooster and the tail has a modest, effeminate droop. When there are no roosters in the flock, the capon will do the best he can to act like a male—but his best won't produce fertile eggs. He will even attempt to crow, but his music is thin, like the blast from a tin whistle.

With these rather limp-wristed male characteristics, the capon also develops some hen-like qualities. He can be made to brood young chicks more efficiently than a mother hen, since he can cover up to 30 chicks as compared to her brood of 10 to 15.

Losses

Deaths caused by the caponizing operation can be held down to below two per cent by a careful operator. Men like

WORK-SAVING
DEMING
Water Systems

SUBMERSIBLE TYPE

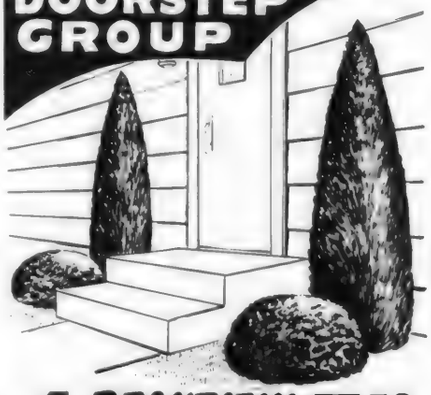
Save money with the Deming Submersible Water System. Operates in wells 400 feet or less in depth. Installation is easy. No special tools required. Entire pumping unit submerged in well. Quiet operation assured. No pump house required. Pump and motor are water-cooled and water-lubricated. Made of corrosion-resistant materials. Capacities from 225 to 1500 gallons per hour. Consult your Deming Dealer or . . .

Send for BULLETIN 6700

Large illustrations show construction features. Selection tables included.

THE DEMING CO.
510 BROADWAY • SALEM, OHIO

Ferris
EVERGREEN
DOORSTEP
GROUP



4 BEAUTIFUL EVERGREENS $5.50 POST-PAID

2 Pyramidal Arbor Vitae, 18-24 inches
2 Globe Arbor Vitae, 10 x 15 inches

A splendid group of Ferris Evergreens for entrance or foundation planting. Hardy, select, northern-grown transplants. Packed in one convenient bundle.

AN OUTSTANDING EVERGREEN VALUE!

FERRIS NEW 1954
Nursery Book FREE

Beautiful, big, colorful, 60-page catalog on spring planting. Lowest direct prices on Ferris Evergreens, Shade Trees, Perennials, Fruit Trees, Roses, Bulbs, Shrubs, Berry Plants, etc. 85th Anniversary Edition. Write to:

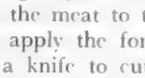
EARL FERRIS NURSERY
425 Bridge St HAMPTON, IOWA

E. G. Carlson, of Mason City, Iowa, who caponizes some 50,000 birds each spring, will hold their losses down to one and a half per cent. Due to being off feed before the operation and on limited feed for a day or two afterward, and due to the shock of the operation itself, the capon will slip a little behind the cockerels in growth, but he soon catches up and at about 120 days, definitely passes the cockerels. His flesh quality is infinitely superior to that of the rooster.

Some farmers raise capons for their own table simply because they like to eat well; others raise from a few hundred to many thousand for the market. Since the birds are usually hatched and caponized in the spring and fed out until they are prime, the capon market has developed into a seasonal affair starting in October, covering the Thanksgiving and Christmas holidays, and ending soon after Easter. During this time the poultry market reports will carry capon prices along with turkeys, broilers, roasters, hormonized birds, and fryers. Since capons are a roasting bird, their prices are usually compared to the roasters. On most markets they will run from 50 to 100 per cent higher than these birds. But price has little meaning unless it is related to the cost of production. Last spring, F. P. Jeffrey, of the University of Massachusetts, figured that it cost a farmer $2.29 for feed, labor, housing, brooding, caponizing, and for the bird itself by the time it reached 26 weeks of age; the farmer averaged $3.53 for the bird sold on the farm at 47 cents a pound live weight, which gave him a net profit of $1.24 a bird. Roasters were bringing around 30 cents a pound on this same market.

Some restaurants fudge a little and serve fat broilers which they list as capons. This may fool some people, but not a discriminating capon eater. As George Bowing says, "You don't even have to taste the meat to tell; all you've got to do is apply the fork test. If you have to use a knife to cut it, it ain't a capon. Capon meat pinches off neat and firm with only fork pressure, and then melts in your mouth when you eat it."

THE AUTHOR: Howard Beuoy was born on a poultry farm near Cedar Vale, Kansas, 51 years ago and has been working with poultry ever since. He produced his first capon when he was six years old using instruments invented by his father—crude forceps made in the blacksmith shop from the tines of a pitchfork. From this beginning, the Beuoys, father and son, continued manufacturing caponizing equipment. Today, Beuoy is one of the world's largest manufacturers of surgical and electrical caponizing instruments.



STATEMENT OF THE OWNERSHIP, MANAGEMENT, ETC., OF THE FARM QUARTERLY

Published quarterly at Cincinnati, Ohio, for October 1, 1953. Required by the Act of Congress, August 24, 1912, March 3, 1933, and July 2, 1946. Publisher—Automobile Digest Publishing Corporation, Cincinnati, Ohio. Editor—R. J. McGinnis, Cincinnati, Ohio. Managing Editor—Grant G. Cannon, Cincinnati, Ohio. Business Manager—Aron M. Mathieu, Cincinnati, Ohio. Owners—Automobile Digest Publishing Corporation, Wilbert Rosenthal, James Rosenthal, Aron M. Mathieu, all of 22 E. 12th St., Cincinnati, Ohio. There are no bond holders, mortgages, or other security holders. Sworn to and subscribed before me this 14th day of October, 1953.

(Signed) Aron M. Mathieu, Business Manager
(Signed) Wm. H. Gehringer, Notary Public
My commission expires February 2, 1955.

SOLUBLE TRACE MINERALS

Tennessee's trace minerals are soluble and their nutritional value is immediately available to the plant. Soluble trace minerals are more economical and faster acting.

Just as sunshine and rain are both necessary to the growth of healthy plants, so it takes the proper minerals and fertilizers in your soil to produce optimum harvests of vitamin-rich crops. Soil poor in minerals cannot grow crops rich in vitamins. ES-MIN-EL contains Boron, Copper, Manganese, Zinc, Iron and Magnesium—the minerals that are just as essential to your soil as are potash, nitrogen and phosphate. The quality of your farm production reflects the quality of your soil. Properly mineralize now with ES-MIN-EL for better yield and higher profits from your land.

Es-Min-El is now available in spray or dust form. If you haven't mineralized your soil, you can now feed these minerals to your plants through the leaves and stems. Es-Min-El spray or dust is a neutral form of Copper, Manganese and Zinc.

Request—

That your Local fertilizer dealer furnish you a completely mineralized fertilizer containing the essential mineral elements

FREE LITERATURE — For Further Information, Phone, Wire or Write . .

TENNESSEE CORPORATION

617-29 Grant Bldg., Atlanta, Georgia

Rain Control

T.M. REG. U.S. PAT. OFF.

Exclusive Features Make Water Go Further And Do more Per Dollar of Cost

Outstanding design superiority of coupler and valves gives users of Hardie Rain Control Portable Sprinkler Irrigation Systems valuable money and labor saving advantages. Coupler is attached without welding, drilling or punching. Wide, strong foot support, positive lock, no-blow-out gaskets, automatic drainage. Two-bolt hook clamp eliminates slippage and pipe damage. Easily coupled and uncoupled from middle of strong aluminum pipe. Rain Control valves absolutely eliminate surging and cut flow resistance to minimum. Look to Hardie for complete systems, pipe, couplers, fittings, valves, pumps, sprinkler heads. Get the facts. Ask your dealer or write.

This is the new Hardie Spanrite 40-foot row-crop spray boom for one-side operation. Hardie also manufactures many different sizes and models of air blast and high pressure sprayers, and row crop dusters for every acreage, small and large. Write for catalog.

HARDIE
PEST CONTROL EQUIPMENT
• SOLD AND SERVICED ALL OVER THE WORLD

The Hardie Manufacturing Company
Hudson, Michigan
3825 Sante Fe Ave., Los Angeles 58, Calif.
1435 N. W. Northrup St., Portland 9, Ore.

Please send ☐ Rain Control Catalog ☐ Sprayer Catalog ☐ Duster Catalog.

Name_____
Address_____
City_____ State_____

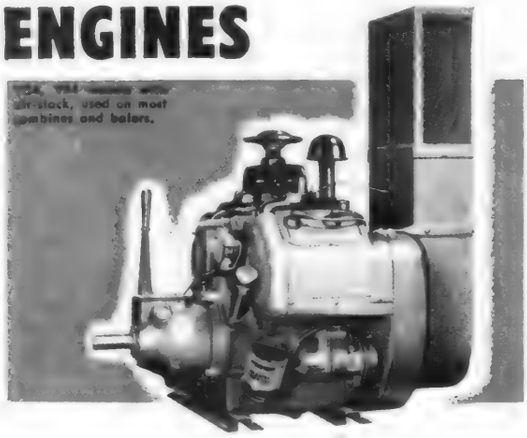
When Unfailing Power is Needed—

You Can Depend on

WISCONSIN

HEAVY-DUTY *Air-Cooled*

ENGINES



...air-stock, used on most combines and balers.

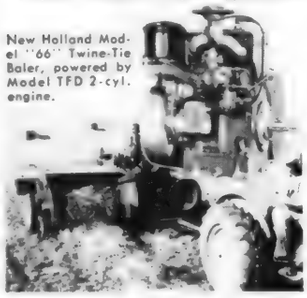
When you are working against time and weather, an equipment breakdown in the field can be very costly. You can't afford to take chances. Neither can the builder of your crop-harvesting equipment. And because the *power unit* is the heart of any mechanized machine, that's *where* you need unfailing dependability. And that's where Wisconsin Heavy-Duty Air-Cooled Engines count most.

Today, 12 leading makes of Pick-up Balers and 7 makes of Combines are Wisconsin-Powered. That's good news for you farmers because it gives you a wide choice of equipment... *plus* the assurance of the best power money can buy.

No matter what your operating and weather conditions may be, Wisconsin Air-Cooled Engines will take the toughest beating you can give them. And with an engine-powered baler or combine, you get uniform, steady power at all times, regardless of tractor slowdowns when the going is rough.

Write for the complete list of Wisconsin-powered Pick-up Balers and Combines . . . and select the make that rates highest with you. We will also send you latest literature.

Fully Automatic Oliver No. 8 Baler . . . a typical Wisconsin Engine application.



New Holland Model "66" Twine-Tie Baler, powered by Model TFD 2-cyl. engine.

12 Leading Makes of Pick-Up Balers are Wisconsin-Powered.

7 Leading Makes of Combines are Wisconsin-Powered.

Case Model "A" straight-line header action Combine.

Gleaner "Six" Combine with windrow pick-up.

MOST H.P. HOUR

WISCONSIN MOTOR CORPORATION

World's Largest Builders of Heavy-Duty Air-Cooled Engines

MILWAUKEE 46, WISCONSIN

Burpee BIG BOY HYBRID TOMATO

Biggest Smooth, Round, Red Tomatoes Ever Produced!

Gigantic, thick-meated, perfectly smooth, so heavy they often weigh 1 lb. or more each. Superb quality, extra delicious, wonderful. Unsurpassed for the garden, wins prizes at the fairs, always brings highest prices.

Plants Grow Faster, Bear Heavier

Because they are Hybrids the plants grow faster, sturdier—bear heavier, and longer. They set more fruits even in bad weather.

FREE Seeds

SPECIAL—for limited time only we'll mail you **10 Seeds FREE**, if you send stamp for postage. Or, to have more plants, we'll mail postpaid **70 Seeds for $1.**

W. Atlee Burpee Co.

351 Burpee Building—*at nearest city:*

Philadelphia 32, Pa. *or* **Clinton, Iowa** *or* **Riverside, California**

Burpee Seeds Grow

SEED CATALOG **FREE** 128 pages, best flowers and vegetables including all the Burpee Hybrids. It's the leading American seed catalog, with money-saving specials on almost every page.

POSSUMS

(*Continued from page* 75)

main permanently attached until about 50 days of age, the teat enlarging to form a sort of ball-and-socket joint within the mouth.

As the young grew and developed the teats elongated to about 2½ inches, allowing some freedom of movement. When the little opossums were about seven weeks old, they began to relinquish the teats for the first time and to crawl about in the warm pouch. One sunny afternoon the mother found a sheltered spot near her den, lay down on her side, opened her pouch, and allowed her young to air and sun themselves. They were now about the size of house mice, but as yet could not regulate their own temperatures, and would have quickly perished if deprived of their mother's body heat.

It would be another 20 days before they were allowed to leave the pouch for short spells. They still depended on the protection of the pouch during the chilly parts of the day, and when the mother went hunting, she called them back inside, closed the opening, and carried them with her. They had become a heavy burden for her and her movements were labored and clumsy.

It was on a hunting expedition at this time that she caught the scent of carrion from across the fields. She found the carcass of a calf, torn and half devoured by other flesh eaters, but now in an advanced state of decay. Through a hole in the abdomen she crawled inside, and ate of the decaying entrails until her stomach bulged and her pouch stretched tightly over her young.

To the mother opossum, the stench was as perfume of the Indies: it was warm and dark there, and she went to sleep.

She was awakened by a presentment of danger. While she slept, her pouch had been open and some of her young were outside. She called them back inside with a soft clacking sound of her tongue and fastened her beady black eyes on the opening of her refuge. The nose of a dog appeared in the opening: his delicate nostrils detected the wild scent of the opossum among the noisome odors of decaying flesh: he reached inside and pulled out the unresisting mother. She resorted instinctively to the only weapon of defense which the opossum has—she played dead. Her heart action slowed down, she frothed at her open mouth, she became limp and unresisting, and her hide loosened. The dog gave her a vicious shake, and began to worry her. She felt his teeth in her neck and the struggles of her young as he bit into her pouch. But she lay motionless. He soon grew tired of worrying her and walked away, leaving her for dead. A dog, as do all other animals, disdains opossum meat unless pinched by extreme hunger.

She waited a long time before she opened her eyes. Her body was bruised and torn, and two of her young were

dead. She crawled slowly to her den, ejecting the dead bodies from her pouch, and lay there for days while her wounds healed and the fear left her.

When the young were 12 weeks old, they began to nurse outside the pouch and some of them remained in the den at nights as the mother hunted. Sometimes they went with her, either riding on her back, holding on to her fur, or in the partly opened pouch. She made no attempt to teach them to hunt, nor did they play or romp at any time. The opossum is all business from birth, and even when young, behaves like a miniature adult.

When the young were about 14 weeks old, the mother began to wean them. They were now as large as rats, and even though they nursed occasionally, most of their food they found themselves—frogs, crickets, worms, grasshoppers, and beetles. They accompanied their mother on hunting expeditions and joined her when she found a dead rabbit or bird, scrounging what they could.

Once, when there were three of her young with her, she found a dead cat on the highway. The four of them were feasting on the mangled remains when a sudden and blinding light bore down upon them with a great rush of noise. The mother, more experienced in danger, retreated in time to the darkness of the roadside, but the young stood frozen in the path of the automobile. One of them was crushed. When all was quiet again the mother crept back to her meal and she and the remaining young ate indiscriminately of the cat and their late relative.

There were now seven alive out of the litter of ten. This was a high average, but the litter was to suffer further casualties before it left the home den. Two small boys, adventuring down the creek bed, poking into old abandoned burrows and hollow logs, came upon the den. They captured two of the young by twisting a forked stick into their fur and pulling them out of the den. Carrying them by their tails, they took them home for "pets."

The young opossums, as pets, were a disappointment to the two boys. While they quickly became tame enough to eat from the hand, they were entirely devoid of any responsiveness. The captured opossums were interested in eating and sleeping only, and were "cute" while young, but they quickly grew to unattractive adults. They were released and became the victims of a neighbor's dog.

A week after the first of the young were weaned, all the survivors of the litter had ceased to nurse. They remained with the mother a short time longer, one by one wandering off to live alone. Soon after, the mother mated again, and bore her second and last litter of the season in mid-May. This litter was weaned in September and by the time winter set in all had found dens of their own. They would never live as a family, nor have more than a casual meeting. The opossum is a solitary creature. He may share his range with others, but not his den nor his social life. An opossum may live to be seven or eight years old if allowed to die naturally, but the average life, due to dogs, automobiles, and man, is about two years. Usually he spends his short life span in the same locality, often on the small farm where he was born. Occasionally, a Marco Polo among opossums will venture as far as two miles from his home base.

Possum Fact and Fancy

The opossum, pinhead that he is, didn't know when he was licked. He appeared on the earth eighty million years ago, a contemporary of the dinosaurs, which he saw come and go. He saw the horse develop from a small beast about the size of a fox; but the opossum kept stubbornly on his way, changing little, surviving when all else changed or disappeared. He is the oldest living American mammal.

Comb the creek banks, the fence rows, the woodlot, or even the outbuildings of any American farm east of the Mississippi and you'll likely turn up an opossum. He is our most common varmint; you can even find him in the crowded business districts of cities. He thrives under almost any condition, will eat anything that swims, crawls, or creeps, and can very well take care

"I looked for looks!"

"I considered all types of barns," says Jim Benesh, Garner, Iowa. "Just one look at Rilco sold me on this type of construction. Rafters are all in one piece from sill to ridge. There's no sway whatsoever. Also, I get more hay storage space because of no braces."

Mr. Benesh's barn is a Rilco Type 32, size 32'x48'. Five men erected rafters in 3 hours. Siding was started on second day. Barn was ready for occupancy in one week. "It's a mighty fine looking barn," concludes Mr. Benesh, "and far cheaper in the long run!"

*Price based on first quality materials, and will vary according to locality.

"I shopped for price!"

"In building our 40'x70' feeder barn, I shopped for price, appearance and for strength," says Elmer Larson, Amboy, Minnesota. "I am well satisfied and continue to get compliments on my Rilco barn. I'm happy I got the best buy."

Finished cost of a Rilco barn is amazingly low because the laminated wood rafters are delivered ready for erection, drilled and grooved for connectors. A set of Rilco rafters for the average barn go up in less than half a day with a five man crew.

*Price based on first quality materials, and will vary according to locality.

RILCO Laminated PRODUCTS, INC.

gives you what you want

√ ENGINEERED CONNECTORS √ STRENGTH √ DURABILITY √ WATERPROOF GLUE

Send today for free Rilco Barn Catalog. Shows and describes barns of all types and sizes.

RILCO Laminated Products, Inc.
2508 First National Bank Bldg., St. Paul 1, Minn.

● Please send new free Rilco Barn Catalog and information on these farm buildings:

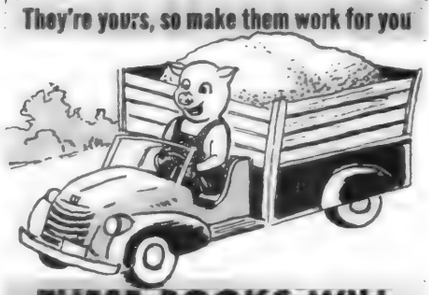
☐ Two-Story Barns ☐ Machine Sheds
☐ One-Story Barns ☐ Hog and Poultry Houses

Name_____

Address_____

Town_____ State_____

They're yours, so make them work for you



THESE BOOKS WILL SHOW YOU HOW

PORK PRODUCTION *third edition*

by W. W. Smith

Nutrition, breeding, marketing, sanitation and disease-control of hogs—here is the latest information on gaining the fullest returns from your hogs. Tables accompanying discussions show results of such practices as hogging-off corn and other crops as opposed to the hand-feeding of swine; the effect of weight at birth on later development; and the pros and cons of selling hogs by direct market and by carcass weight and grade. *616 pages* $5.75

PRINCIPLES OF FIELD CROP PRODUCTION

by J. H. Martin and W. H. Leonard

Are you missing crops which could be making money for you each year? The major field crops of the United States are discussed with requirements of environmental factors, fertilizers, harvesting and marketing. Read and discover how you can improve the conditions of the crops you are growing, and what new crops you can add to increase the production of your farm. *1176 pages* $6.50

MODERN BREEDS OF LIVESTOCK

by H. M. Briggs

Improve your breed by becoming aware of its possibilities, limitations, and comparable breeds of livestock. Here is the complete story with thought toward satisfying a demand for livestock that will turn grass, hay, and concentrates into meat, milk, wool, power or pleasure. *772 pages* $6.00

ELEMENTS OF DAIRYING *second edition*

by T. M. Olson

Beginning with the essentials of dairying, the author covers in detail the selection of individual animals and the maintenance and care of a profitable herd (including discussion of types of barns and milking equipment). From here he goes on to discuss the best crops to grow and the best methods of doing so in the light of the marked advances during recent years. *708 pages* $5.50

THE MACMILLAN COMPANY Dept. D FQ
60 Fifth Avenue, New York 11

Please send me copies of the books checked. I will either remit in full or return the books in ten days.

☐ Smith: PORK PRODUCTION $5.75
☐ Martin & Leonard: PRINCIPLES OF FIELD CROP PRODUCTION $6.50
☐ Briggs: MODERN BREEDS OF LIVESTOCK $6.00
☐ Olson: ELEMENTS OF DAIRYING $5.50

SAVE! Send check with order and we will absorb the delivery charges.

Name_____
Address_____
City_____ Zone____ State_____
(This offer good only within the continental limits of the USA)

of himself without benefit of protection, even though he is preyed upon by many animals, including man, and loses his life by the thousand on our highways.

The opossum is remarkable for a number of reasons, many of which are pure fable. First, he *does not* mate through the nose, as folklore has it: the young *do not* wrap their tails around their mother's when hitch-hiking; *they do sometimes eat their tails, which do not grow back again;* it would take 2800 of their young, when born, to weigh a pound; *they do feign death, or "play possum";* and they are probably the least intelligent of any four-footed creature on earth today.

During the last thirty or forty years, the opossum has extended his range. Before 1917, there were none east of the Hudson River, but now there are some in New England, and a few as far north as Maine. Their numbers are growing on the Pacific Coast, and a few have appeared in western Colorado and southern Texas. He is more abundant in the South, where roasted "possum" and sweet potatoes are as common, among certain classes, as ham and eggs in the North.

The adult opossum varies in length from 24 to 36 inches, of which 15 inches may be tail. It weighs up to 20 pounds. The males are somewhat larger. Its fur is long and soft, ranging from gray to black or brown, shading to white on the belly. Its ears are bare and prominent and its tail is covered with a scale-like skin, almost hairless. Its front feet have five claw-bearing toes; the hind feet have four toes, claw-bearing, and a fifth, which opposes the other four like a thumb, and has no claw. The opossum walks flatfooted on the soles of its feet, which are hairless. It has 50 teeth, more than any common mammal.

The Opossum, His IQ

As one might expect from the size of his brain, the opossum is an extremely stupid animal. Although about the same size as a big house cat, his brain is only one fourth as large. Mentally, he is not far above a smart reptile, beyond which he has evolved little. And the opossum has learned little in the twenty million years he has been on earth—his brain case today is about the size it was when he was consorting with the dinosaurs.

With all his stupidity, it is surprising that he has survived while his betters have succumbed to time, a changing world, and to enemies. One explanation is his extreme adaptibility. Regardless of where he finds himself, he makes himself at home—under the floor of a downtown garage, in a hollow log in the north woods, or in a coyote den on the prairie. His appetite is cosmopolitan and everything in the vegetable or animal kingdom agrees with him. He asks nothing of his environment, but adapts himself to what he finds at hand.

Being extremely prolific, the species can

CAMPBELL-HAUSFELD *Tankmobile*

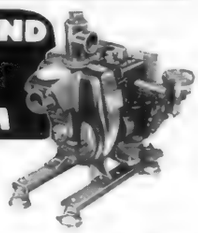
takes compressed air anywhere

The Tankmobile with the world famous Pressure Princess piston-type air compressor brings service station to farm . . . to inflate your tires, lubricate farm machinery, spray-paint farm buildings . . . the easy time-saving way. Automatic start and stop. Electric motor or gas engine models.

See it at your dealer or write

THE CAMPBELL-HAUSFELD CO.
181 RAILROAD AVE. HARRISON, OHIO

AN ALL 'ROUND **PUMP** for the FARM



The MIDGET 1½" *Lightweight*

For farm uses too numerous to list! Pumps 400 times its weight of water per hour at average heads. Primes in 75 sec. at 25 ft. suct. lift. Has maximum lift of 30 ft. (Sea level). Weighs only 62 lbs.

GORMAN-RUPP LIGHTWEIGHTS COME IN 4 SIZES:

The Midget 1½"	— wgt. 62 lbs.	—	5,500 G.P.H.
The Pelican 2"	— wgt. 70 lbs.	—	7,500 G.P.H.
The Hawk 2"	— wgt. 110 lbs.	—	10,000 G.P.H.
The Eagle 3"	— wgt. 117 lbs.	—	18,000 G.P.H.

Send for Bulletin 7-LW-13

THE GORMAN-RUPP CO.
MANSFIELD, OHIO

HALL BROS. *Chicks*

PROVEN PROFIT PRODUCERS

SEND for FREE 32 page Catalog and Laying Contest Records.

HALL BROTHERS HATCHERY, INC.
Box 10 Wallingford, Conn.

WELL BRED FROM WELL BREEDERS

Join the ranks of Successful Breeders Using—
BREEDER-ADE® OIL

. . . for surer pregnancies . . . for better young

Follow the lead of successful breeders in all parts of the country—feed Breeder-ADE Oil before mating. This blend of carrot oil, wheat germ oil and "D" activated animal sterol successfully combats nutritional sterility. 4 oz. only $1.80 postpaid!

Put Breeder-ADE Oil in feed of horses, cattle, swine, dogs, poultry and fur-bearers. Dosage varies according to size of animal—follow simple directions in Bulletin 23 sent in each package. Orders shipped same day received. Send check or money order for $1.80. Money back if not satisfied. Breeders who have tried it reorder year after year.

NUTRITIONAL RESEARCH ASSOCIATES
SOUTH WHITLEY, INDIANA
Department A-3, ®Trade Mark

survive extensive inroads on its population. There are usually two litters a year. Fully half of the 13 that may find teats survive to adulthood.

The Opossum, More Odd Bits About Him

Old biology textbooks pictured sleeping opossums hanging by their tails. This is erroneous. They use the tail only as a balance, or as a sort of fifth foot when climbing. They can hang by the tail, however, if more than half is over a limb. They use it regularly to carry burdens, such as nesting material.

He is apparently subject to few diseases, but many parasites are found on and in him, such as tapeworms, flukes, roundworms, chiggers, ticks, lice, and fleas.

His fur is used to trim cheap coats. The average price paid to trappers last year was 50 cents per pelt. In some parts night hunting of opossums with dogs is a favorite sport.

One of the best descriptions of an opossum was written more than 300 years ago by an English traveler. In 1616, Samuel Purchas, writing back to England about this strange creature, said: "The Opossum hath a head like a swine, a tayle like a Rat, as big as a Cat, and hath under her belly a bag, where she carrieth her young. . . . It hath the body of a Fox, handed and footed like a Monkey."

WILD RICE

(*Continued from page* 77)

crop and the state of the market.

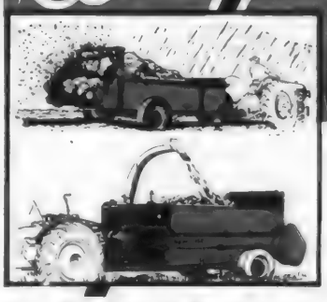
In order to build up his volume of raw material, Myers established what he calls his navy. This consists of 50 ricing boats, built according to the conservation department's specifications, which he leases to the ricers. Ricers make from $200 to $1,000 per couple per season.

Forage Value

Besides producing a good grain, the wild-rice plant also furnishes an excellent feed. However, it is not a forage grass in the ordinary meaning of the term, although the young plant is quite succulent and is very much liked by stock. When it is accessible, as it is on the tidal lands at low tide, this grass often is cut before the flowering stem appears and is then fed to cows and horses. In composition it compares favorably with many grasses that are used in the same way, but, of course, cannot compete with other wild species that require less water for their growth.

There are many areas, where it is not now found, where wild rice will thrive, especially along the Atlantic seaboard, in the North, and in the Pacific Northwest. Good stands are obtained either from the

Cobey COMBINATION PTO SPREADER and SELF-UNLOADING WAGON



ONE does the work of TWO

Two implements in one — each outstanding of its kind.

1 Top efficiency with Tractor-power-operated manure spreader for year around use.

2 Easily converted to a PTO self-unloading wagon for chopped forage, ear corn and other crops.

Yes, your money goes *twice as far* when you buy the COBEY Combination Spreader-Wagon because it buys you *twice as much* in JOB PERFORMANCE! It will pay you to get the facts — mail the coupon today.

THE COBEY CORP.
GALION, OHIO

CHOOSE FROM 3 SIZES

Model 150 - Capacity 150 bu.
Model 100 - Capacity 100 bu.
Model 75 — Capacity 75 bu.

RETURN COUPON FOR LITERATURE

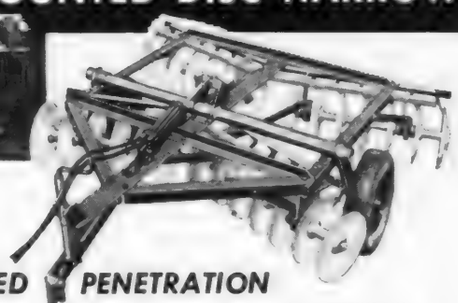
☐ COMBINATION SPREADER and SELF-UNLOADING WAGON
☐ PTO SELF-UNLOADING WAGON
☐ HI-SPEED CONVERTIBLE WAGON
☐ PTO DUMP WAGON
☐ WAGON GEAR and BOXES
☐ TILTING PLATFORM WAGON
☐ TWO-WHEEL TRAILERS

THE COBEY CORP. Dept. FQ-123 Galion, Ohio
Please send me complete information on items checked
Name _____
Address _____
City _____ State _____

☐ SILAGE BLOWERS and FEED GRINDERS
☐ MULTI-PURPOSE HARVESTER
☐ PULVERIZERS and MULCHERS
☐ HARROWS and HOES
☐ HI-CLEARANCE WAGON and HAY RAKES

COBEY FARM EQUIPMENT FOR HAULING, TILLING AND HARVESTING

BURCH E-Z-GO WHEEL-MOUNTED DISC HARROW



No Shifting
No Drifting

CONTROLLED PENETRATION

At comparative field demonstrations across the country—under every kind of test and condition—the BURCH E-Z-GO Wheel-Type Disc Harrow has won hands down against all comers!
Working toughest soils or cutting toughest stalks . . . competing on trickiest discing jobs and following curviest contours . . . this great BURCH implement has consistently taken top honors for operating accuracy, stability and downright dependability.
This unbeatable showing in roughest going is soundest proof of the superior performance you can bank on—when you invest in a BURCH E-Z-GO. So, before you decide on any disc harrow have E-Z-GO demonstrated on your farm. See your BURCH dealer Now.

Mail Coupon For Free Folders!

"BEST IMPLEMENTS IN EARTH"

BURCH PLOW WORKS, Dept. 0-14, Evansville, Ind.
Manufacturers of Power-Lift and Drawbar Implements
Send free literature on ☐ Power-Lift Implements ☐ Drawbar Implements to:
Name.....
Street or R.F.D.....
Town.....State.....

In Dry or Wet Years

CONTROLLED MOISTURE

IRRIGATION PAYS OFF!

READ WHAT DELMAR SCHULTZ, FARMER AT TULARE, SO. DAKOTA, HAS TO REPORT

AUGUST 15, 1952
Moulton Irrigation Company
Withrow, Minnesota
Gentlemen:
In the Spring of 1951, I purchased my irrigation system from you. I am well pleased with the operation and portability of the system. The hinged handles on your pipe and the Moulton Quick Coupler are certainly excellent features.
I have irrigated alfalfa almost exclusively and yields have been increased from 2 to 4 times a normal yield.
For ease of operation, simplicity, and durability my Moulton Irrigation System is tops and I would recommend it to anyone.
Yours very truly,
Delmar Schultz
Tulare, South Dakota

MOULTON Portable IRRIGATION SYSTEMS

- ENGINEERED FOR YOUR FARM'S CONDITIONS
- AN IRRIGATING SYSTEM SIZED FOR EVERY NEED
- PATENTED COUPLER — BEST IN THE FIELD
- BACKED BY 14 YEARS' IRRIGATION EXPERIENCE

No Bolts
No Rivets

MOULTON QUICK COUPLER

Users of Moulton Irrigation Equipment are constantly reporting success stories similar to this. Profits are increased, even in "wet" years, while drouth losses are no longer a danger. Doubling and even tripling of yields are not uncommon among users. Moulton Controlled Moisture Systems soon pay for themselves. Remember . . . only Moulton Systems have the Moulton Flexible Quick Coupler combined with aluminum pipe and folding handles that afford the easiest coupling and uncoupling from carrying position.

A Completely Welded Unit — **A FULL LINE OF SPRINKLERS & PUMPING UNITS. FREE PLAT CHART & FOLDER**

MOULTON IRRIGATION COMPANY

WRITE BOX W3 FOR COMPLETE DETAILS . . . WITHROW, MINNESOTA

"A fine list of stimulating and valuable books."

—LOUIS BROMFIELD

1. THE AMERICAN GRASS BOOK
By SELLERS ARCHER & CLARENCE BUNCH. A Manual of Pasture and Range Practices, this book will assist you in planning and establishing grasslands for: profit, proper land use, and protection from soil erosion. 177 illustrations, 53 maps. **$3.95**

2. TORNADOES OF THE U. S.
By SNOWDEN D. FLORA. The first book which makes available to everyone pertinent facts on tornadoes: when to expect them, forecasts and warning systems, how to escape death and protect property. With forty-eight graphic illustrations. **$3.50**

3. JOHN WHITE'S THE FARMER'S HANDBOOK
The latest authoritative information from many top sources. Checked by experts to give you the best and most up-to-date advice on all your daily farming problems. Revised edition. Illustrated. **$4.95**

4. SOIL DEVELOPMENT
By EDWARD H. FAULKNER. The man who started "the hottest farming argument since the tractor first challenged the plow" in *Plowman's Folly*, reports on how to "grow" soil while growing crops. **$3.00**

5. MINERAL NUTRITION OF PLANTS AND ANIMALS
By FRANK A. GILBERT. The "hows" and "whys" of avoiding "hidden hunger". **$2.75**

USE THIS COUPON TO ORDER

University of Oklahoma Press, Dept. 38, Norman, Okla.
Please send me the books whose numbers I have circled below:
1 2 3 4 5
Name .....
Address .....
City ..... Zone ... State .....
☐ Payment enclosed ☐ Send C. O. D. (postage extra)

WITH THE POWERFUL

Sunbeam **STEWART** ELECTRIC **CLIPMASTER**

Nationally known Dairy and Health Authorities say: Clipping prevents dirt accumulation—the chief source of sediment in milk. Clipped cows are easier to keep clean, take less time—produce milk with lower bacteria count and less sediment—it is more desirable milk, brings more money. For best clipping results use Clipmaster. Powerful, air-cooled, smooth-running motor inside the Easy-grip handle Can also be used for clipping horses, mules, dogs, etc. $39.95 (Colorado and West, $40.25). Grooming brush, drill head and sheep shearing attachments available at slight extra cost, give Clipmaster year-'round use.

Sunbeam Stewart clipping equipment is available at hardware and implement dealers

Sunbeam **CORPORATION**
(formerly Chicago Flexible Shaft Company)
5600 Roosevelt Rd., Dept. 147, Chicago 50, Ill

seeds planted directly, or from transplants.

The Gourmet's Delight

Wild rice is a fine, nutritional food, easily digested, with a little more protein and fat than ordinary rice.

The basic recipe for the preparation of wild rice is as follows:

Place the wild rice in a colander and wash thoroughly with cold water. Drain and place in a pan deep enough for water to extend at least one inch over rice. Cover with boiling water. Let stand until water cools, drain, and again cover with boiling water, permitting it to cool. Repeat this procedure three times, adding 1 level teaspoon salt to the last boiling water, and let rice open thoroughly.

Your wild rice is now steeped and ready for use in any recipe. Be sure to save the water from the last steeping of wild rice to use as liquid for all recipes requiring it. One pound dry, wild rice makes approximately 6 to 7 cups when steeped. It may be used in dressings, stews, soups, and as a stuffing for peppers or other vegetables. Following are the recipes for wild rice dressing and stuffed peppers:

Wild Rice Dressing

Place following in bowl:

- 1¾ cups prepared wild rice
- 1 large chopped onion
- 1 chopped green pepper
- ½ to ¾ cups diced celery
- 1 rounded teaspoon salt
- 1 teaspoon pepper
- 1 teaspoon sage
- 2 tablespoons shortening
- 1 lightly beaten egg.

To the above add:

1 can cream of mushroom soup which has been thinned with 1 cup of juice saved from the last steeping of rice.

For added zest, add ¼ cup of Burgundy red wine and diced almonds. Mix thoroughly and stuff fowl.

Stuffed Peppers (6 to 8)

Saute ½ pound ground beef and 1 medium onion in skillet. Season to taste. To this add:

- 1 can tomatoes
- 1¾ cups prepared wild rice
- 1 diced carrot
- ½ to ¾ cups chopped celery
- 1 teaspoon salt
- ½ teaspoon pepper

Cover and let simmer 20 minutes over low flame. Wash and clean peppers, stuff with above, and top with cheddar cheese. Bake in oven (375°) for 35 minutes.

THE AUTHOR: Walter J. Hunt is assistant director of the Agricultural Development Department of the Northern Pacific Railway Company. As one of his duties in this post he has, for the past 25 years edited a small agricultural magazine, "The Northwest," published by the railway company. Prior to his connection with the Northern Pacific he was farm editor for the *Waterloo Courier* at Waterloo, Iowa.

LIME

(*Continued from page* 71)

With legumes such as alfalfa, sweet clover, or ladino clover, liming may make the difference between an excellent crop and no crop at all. Legumes such as red clover and lespedeza are less exacting in their lime requirements, but do respond to lime applications where soils are very acid and are low in calcium and magnesium.

Crops That Like Lime

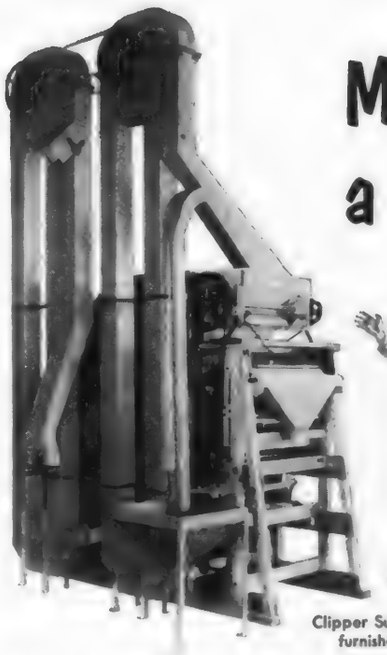
Soybeans respond to lime like a harvest hand does to fried chicken. Many soybean fields in the Midwest yield only a fraction of the beans that could be produced if the land were adequately limed. Often unlimed soils produce only 10 to 12 bushels of beans per acre. Liming alone can increase the yield on many fields to about 30 bushels per acre. Better still, liming sets the stage for the soybeans to respond to applications of phosphate and potash. Lime applied heavily enough to bring the pH to 6.5 in a complete treatment can bring yields up from the usual 10 or 12 bushels to a profitable 40 bushels per acre.

Corn is less responsive to liming than the legume crops. In a few cases liming has produced yield increases up to 20 bushels per acre in field tests in Ohio. Lime has more indirect than direct influence on corn yields. Corn is often grown on land following sod which contains legumes. Where lime improves the legumes, big corn yields follow.

Tobacco is a crop which most farmers would never think of liming. However, the fact that tobacco leaf contains three percent or more of calcium oxide indicates that you have to supply calcium some way. Magnesium deficiency or "sand drown" is fairly common in tobacco. When magnesium becomes deficient in the plant, the plant food is moved out of the lower leaves and is moved up to the rapidly growing parts of the plant. In tobacco, lime is actually a plant food and the application of 500 to 1000 pounds of dolomitic limestone will not only supply the needed calcium but will do a good job in feeding it the magnesium which controls "sand drown."

Cotton seems to do best where soils are just slightly acid, but too many cotton farmers think that means "cotton never needs any lime." Seed cotton yields have been boosted by as much as 1000 pounds per acre by applying limestone on extremely acid soils. Since a large part of the cotton is grown on soils which are too acid to produce maximum yields, one of the cheapest and easiest ways to increase cotton profits is to look into the soil condition and add lime if it is needed.

Peanuts respond markedly to liming, for they have a very specific requirement for calcium. Their requirement for magnesium is somewhat less than for calcium, but no less specific. A deficiency of either will prevent the nuts from developing. The result is empty hulls or "pops."



Man, There's a Seed Cleaner!

Because—
the Super 167-D fits so many requirements.

Ideal for the:

- Larger farmer
- Smaller seedsman
- Certified grower
- Custom plant operator
- Country elevatorman
- Large seedsman (as auxiliary machine)

Clipper Super 167-D specifications furnished without obligation.

The 167-D is a complete cleaning and elevating system . . . quickly and economically installed in any room having 13'1" clearance . . . easily operated . . . quick cleanouts . . . operates on any solid floor without pit (also available with 30" longer supply leg permitting sink hopper to set flush with the floor).
Cleans and grades nearly every variety of beans, grains and seeds grown anywhere.

There is a Clipper to do your job—over 60 models—capacities from 25 to 3500 bu. per hr.—write for your free catalog.

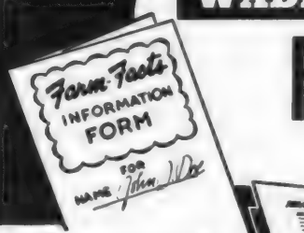
CLIPPER
GRAIN • SEED AND BEAN CLEANERS

Clipper Cleaners — A Safe Investment

A. T. FERRELL & CO. Dept. F Saginaw, Mich.

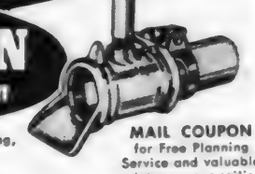
PLAN NOW Boost Profits with Sprinkler Irrigation

WADE RAIN'S FREE PLANNING SERVICE



Send for FARM FACTS Information Form

WADE RAIN Sprinkler Irrigation



WE WILL HELP YOU PLAN

To assure yourself of the benefits of Wade Rain, "Field-Fitted" to your farm, send for "Farm Facts" Form and mail it back to us . . . we'll gladly have a trained Wade Rain Field Technician visit your farm to help you plan. No Cost or Obligation!

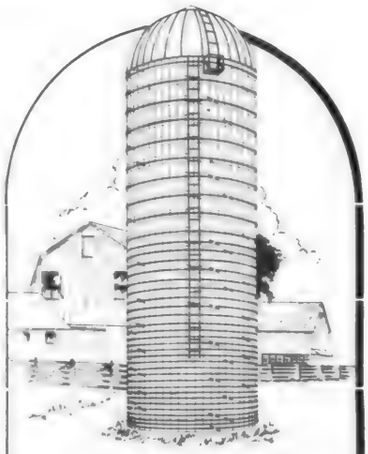
Saves Water, Walking, Work . . . has Self-Draining LOKS-IN Gasket

MAIL COUPON for Free Planning Service and valuable data on your soil's water capacity.

NOW . . . POWER-ROLL
Saves Time & Labor

Wade Rain POWER-ROLL . . . Sensation of Sprinkler Irrigation today! Compact Engine moves entire Lateral Line to new setting in minutes . . . on wheels! One-Man Operation.

R. M. WADE & CO. SINCE 1865 W-26-H
1919 N.W. Thurman St., Portland 9, Oregon
Please send me "FARM FACTS" Information Form and Illustrated Literature on:
☐ WADE RAIN SPRINKLER IRRIGATION
☐ POWER-ROLL
Name .....
Rt. & Box .....
City ..... State .....



Your New Silo—
PLAN IT NOW!

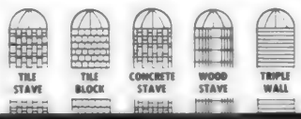
Plan a new Craine silo *now*. Plan, too, for the advantages your Craine will bring you—time and labor savings which you'll value—safety and convenience you'll appreciate.

You know that good silage provides the most profitable, efficient feeding. And you'll find that a durable Craine silo is *not* an expense. It's an *investment*—and like other farmers, you'll say "My Craine is the best investment I ever made!"

CRAINE'S THE NAME

The early buyer gets seasonal discounts—better service. We'll send full details, including easy payment plans. No obligation—just drop us a line.

Craine, Inc., 1253 Cedar St., Norwich, N.Y.



CRAINE SILOS

The SWING is to

LEAN MEAT BERKSHIRES

"The Packers Favorite"

More lean — less lard, bred that way for 75 years. The average Berkshire sow farrows a litter of 10 pigs. They're great foragers.

Write for literature and list of breeders

AMERICAN BERKSHIRE ASSOCIATION
Dept. 14, 601 W. Monroe Street
SPRINGFIELD, ILLINOIS

Under very acid conditions peanuts suffer a nitrogen deficiency due to the inactivity of nitrogen fixing bacteria. Peanut-growers use lime both as a plant food and a soil sweetener.

The Lime Eaters

Meeting the lime requirement is the first step in any pasture or forage crop fertilization program. Practically all of the better forage legumes have high lime requirements. The forage grasses, while requiring less lime, make their best growth where lime is applied in sufficient amounts to keep the pH between 6 and 6.5.

Alfalfa has a high lime requirement. On an acid soil in New York, alfalfa gave the following responses to lime treatments:

Lime Per Acre	5-Year Test Avg. hay yield per yr.
1 Ton	0.6 Tons
2 Tons	1.8 Tons
4 Tons	3.1 Tons

It is obvious that the cost of putting on the four tons of lime was repaid many times by the increased alfalfa yields during this period.

The major plant foods, nitrogen, phosphorus, and potash, are most easily used by plants when soils are limed to a point just on the acid side of neutrality. In acid soils phosphorus is tied up in insoluble iron and aluminum compounds and is not readily available to crop plants. On the other hand, when soils are limed to a point above neutrality, phosphorus is tied up with calcium in insoluble compounds. This emphasizes the need for applying lime as shown to be needed by soil test—no more, no less.

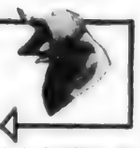
Soil Microbes

Well limed soils are loaded with soil microbes or microscopic organisms. Fertile soils may easily contain 5000 pounds of microbes per acre to plow depth. The three main classes of microbes in soils are bacteria, fungi, and actinomyces. In well limed soils the bacteria will dominate. Fungi will be most abundant in soils having an acid reaction and lots of humus. Actinomyces grow best where the soil is near neutrality. This is the organism that gives freshly turned land its pungent odor. All of these microbes are important in the breakdown of organic matter such as straw, corn stalks, cotton stalks, and green manure crops turned under. However, all three groups—bacteria, fungi and actinomyces—contain black sheep members which cause serious diseases of crop plants.

Some of the more common diseases produced by soil microbes are scab of potatoes (actinomyces), clubroot of cabbage (fungi), and alfalfa wilt (bacteria). The well-known remedy for potato scab is to keep the soil acid. A pH of 5 to 5.5 is good for potatoes. Clubroot of cabbage

CREIGHTON'S LEGHORNS

bred to PAY!



U. S. CERTIFIED
PULLORUM CLEAN
95,000 Commercial Layers

Constant research in breeding, nutrition, and management for 29 years (23 years under ROP) is back of the Creighton strain of Leghorns, a strain noted for Low Adult Mortality, High Egg Production, High Hatchability, Excellent Egg Quality, and Economical Body Size.

Write for new catalog, illustrates our breeding program step by step and describes 3 matings we offer. Creighton Bros., Warsaw 3, Indiana

CREIGHTON BROS. R.O.P.

Big FREE CATALOG NO. 153

helping thousands enjoy quality **STOCKMEN'S SUPPLIES** at lower cost. • Now, **save** and **have** with this new Style Book of Western Wear . . . Boots, Hats, Shirts, Chaps, Saddles, etc. **WRITE TODAY**

FRED MUELLER, INC.
25 MUELLER BLDG., DENVER, COLORADO

RECOMMENDED for FASTER PASTEURIZATION AND BETTER FLAVOR!

Write for details on

Model P-3000
2 gals. cap. f.o.b. factory $37.50

The **SAFGARD PRES-VAC** MILK AND CREAM **PASTEURIZER**

Its *pressurized* heating destroys all milk-borne disease germs faster (up to 2 gallons in 24 minutes). Its *vacuum cooling* seals in all vitamins and delicious natural flavor. 1 year guarantee. For FREE circular write Dept. 12-FQ

SAFGARD DIVISION
GRAND SHEET METAL PRODUCTS COMPANY
Melrose Park, Illinois

Let BEES Make Money and Honey for You!

Easy to raise, fascinating — you make good money. Improves your crop — often doubles the yield of clover and alfalfa seed, etc.—valuable in orchards. Inexpensive—requires very little of your time.

Send $1.00 for book "First Lessons in Bee-keeping" and six months subscription to leading bee magazine. Or send for information about complete bee raising outfits, including the bees. Write today!
American Bee Journal, Box N, Hamilton, Ill.

More Profits with Market Topping HAMPSHIRES

✔Better Mothers
✔Cheaper Gains
✔MORE Meat

More hog growers are demanding Hampshires to get that extra pig per litter; more pounds of quality red meat per head; and higher dollar value of carcass. Rapid growth, economy of gain, rustling ability and fine carcasses insure added profits. Hampshires are the answer to efficient, profitable, quality pork production. WRITE for

FREE! breed literature; location of bred sow sales; addresses of nearby breeders.

Send $1.00 for 1 yr. sub. to **Hampshire Herdsman**, breed magazine.

BRED SOWS *By Mail Order!* Save time and time! Let our expert Fieldmen select your seed stock, at your price . . . a free service . . . *satisfaction guaranteed.* Write for details.

HAMPSHIRE SWINE REGISTRY
1123 MAIN ST., PEORIA, ILLINOIS

can be controlled by liming the soil to neutrality.

Liming favors the growth of bacteria and actinomyces. The growth of fungi is depressed by liming since bacteria and actinomyces are better able to compete in sweeter soils. It is apparent that the susceptibility of certain crops to soil borne diseases determines to some extent the lime program which should be followed.

Good farmers, who know how to get big yields, usually find that their farmland needs lots of lime. The use of heavy applications of high analysis fertilizers and the use of legumes in the rotation put a heavy drain on the lime supply in the soil. Other practices which increase the crop yields add further to the lime needs. As larger crops are grown, more calcium and magnesium are taken from the land in harvested crops. In addition a considerable amount of calcium and magnesium are lost annually by leaching. It is essential, then, that enough lime be applied to the soil to take care of these losses and provide enough for good crops besides.

Liming Materials

There are so many different liming materials on the market that a farmer may be confused in trying to decide which one to buy.

There is bagged lime and bulk lime, hydroxide lime and oxide lime, calcitic lime and dolomitic lime, coarse lime and fine lime, basic slag and silicate slag. The list is endless. Out of this mass of materials the farmer must select one for his farm. In most cases an agricultural ground limestone will be the most economical buy for the farmer. The finer pulverized material goes to work rapidly but it is more expensive than the ground limestone. On the other hand, many unwary farmers hand over their PMA checks and good hard cash for limestone that qualifies as ground road gravel.

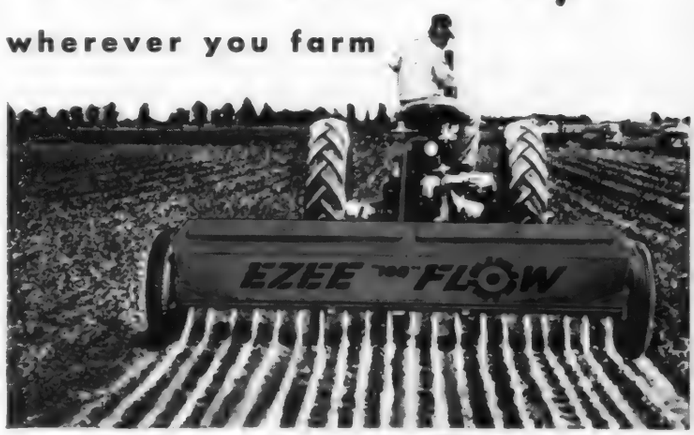
Lime must react with the soil to make calcium and magnesium available to plants. In order to react, the surface of limestone particles must come in contact with the soil. By breaking a rock with a hammer you can see that more surface is exposed. This is true in grinding lime. The finer the lime is ground, the more surface is exposed. The finer the lime, the more rapidly it will react with the soil. There is no advantage to be gained by applying coarse lime that will not give results in your lifetime.

Coarse screenings and limestone meal are generally poor buys since only the finer part does any good at all. The part that will not pass a 40 mesh sieve is worth very little as lime. In buying lime ask to see the specifications on fineness of grind.

Ground, untreated limestone is the material most commonly used for liming soils. However, there are other materials that are used to some extent for this purpose. Burned lime is sometimes used. It is usually marketed in paper bags as a

Make More Money...

wherever you farm



with the EZEE FLOW® system of fertilizer application

On large or small farms across the country, more and more farmers are using an Ezee Flow to make the dollars they spend for fertilizer bring them top dividends in increased yields. Ezee Flow, with a model designed for your size of farm operation, guarantees that the fertilizer you invest in your land for greater yields can be applied accurately and efficiently. Only Ezee Flow with its patented cam agitator, can guarantee to spread *any* fertilizer in *any* condition, in *any* amount, from 10 to 5,000 lbs. per acre—or your money back! Ask your dealer to prove this guarantee with a demonstration on your farm.

YOU DON'T NEED A LOT OF EXPENSIVE EQUIPMENT WHEN YOU OWN AN EZEE FLOW

LOOK WHAT IT DOES!

- Broadcasts Fertilizer
- Applies Fertilizer in Bands
- Side Dresses all Row Crops
- Sows Small Grains
- Sows Most Legumes, Grasses
- Spreads Lime

MOST POPULAR EZEE FLOW MODEL—the SD-50, for Ford and Ferguson tractors, can be used over cultivator for side dressing, or without cultivator for broadcast spreading.

FREE New Fertilizer Application Guide for Major Field Crops.

EZEE FLOW
AVCO Manufacturing Corp. D.
10 S. LaSalle St. Chic.

NAME
ADDRESS
TOWN

© 1953 Ezee Flow

finely ground powder. Burned lime, oxide of lime, or quicklime as it is sometimes called, is caustic and irritates the eyes and burns the skin. Hydroxide of lime is produced by adding water to burned lime. It is often referred to as slaked lime. Like the burned lime it is disagreeable to handle. Both quicklime and slacked lime were used extensively in the days before indoor plumbing, to keep outhouses from overpowering the more pleasant farm smells.

Where ground dolomitic limestone is used, fineness of particle is particularly important. Dolomitic stone is harder than calcitic stone and dissolves more slowly in the soil. Dolomitic limestone is a good source of magnesium and should always be used when the soil tests low in magnesium. Even if the magnesium test is high, a dolomitic limestone should be applied if heavy fertilizer applications are made and if you are shooting for top yields. Some field tests have shown that corn may exhibit magnesium deficiencies when grown at high fertility levels, but fail to show any deficiencies at lower fertility levels on the same soils.

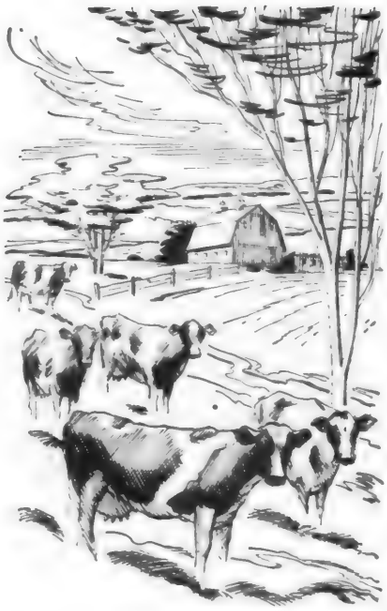
If you can get a local, finely ground, dolomitic limestone bulk spread on your land for a reasonable price, you can't go wrong. Talk to your county agent or vocational agriculture teacher about lime that is available from nearby quarries. Your state soil testing laboratory can analyze the limestone samples. Ask your laboratory for this information.

When to Lime

Farmers often ask "When should I lime?". Dr. Garth Volk, head of the agronomy department, Ohio State University, answers, "Don't put it off, put it on." Lime can be applied anytime a spreader can get on the land without packing the soil or getting mired down.

Summer liming followed by fall plowing gets lime into the ground in time to benefit spring-seeded legumes. Fall liming is also practical on pastures and other areas where spring seeding is anticipated. Weather is a drawback to winter application in some areas. However, lime can be spread on frozen corn or bean land which is to be spring seeded. It is not advisable to apply lime on steep land in the winter due to erosion losses which can occur. It is always best to get lime on the land at least six months before your next legume crop is to be sown.

How are we doing as far as lime use is concerned? Not so good, according to the U. S. Department of Agriculture. Nationwide we need to apply a whopping 395,310,000 tons of lime to 187,029,000 acres to get our soils up in calcium, magnesium, and pH. Then we need to apply about 47,000,000 tons of lime annually to maintain our soils. We apply only about 27,000,000 tons annually. Applying lime was more the rage a decade ago. Since that time it nearly has been crowded out of



Purebreds!

PURE bred stock... high yield seed strains... perfectly kept buildings and equipment... all are the mark of the farmer who realizes that only from quality can be derived the most in profits and surety of investment.

And here's quality *diesel* power—the Fairbanks-Morse Diesel Model 49! It's built to the same exacting standards that have produced over ten million diesel horsepower stamped with the name—Fairbanks-Morse.

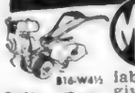
Be sure of dependable POWER with Fairbanks-Morse Diesels! Fairbanks, Morse & Co., Chicago 5, Illinois.

FAIRBANKS-MORSE

a name worth remembering when you want the best

DIESEL AND DUAL FUEL ENGINES • RAIL CARS • DIESEL LOCOMOTIVES • ELECTRICAL MACHINERY PUMPS • SCALES • WATER SERVICE EQUIPMENT • FARM MACHINERY • MAGNETOS

Beats Any Other Equipment Ever Made for Tilling—Cultivating—Year 'Round Use



M-E ROTARY TILLERS

Just one demonstration proves M-E! Variable wheel and rotor speeds give controlled soil aggregation in tilling and cultivating . . . universal tines are self-sharpening, non-winding, guaranteed against breakage! 6 models . . . 15 quick and easy plug-in attachments. See and buy M-E! $188 and up

★FREE BOOKLET

Fully illustrated Write today to M-E 333 Marion Street, South Milwaukee, Wis.

MILWAUKEE ROTARY TILLERS

Milwaukee Equipment Mfg. Co., So. Milwaukee, Wis.

Subsidiary Food Machinery & Chemical Corp.

SUNBEAM CHICKS

"BEST UNDER THE SUN"

U.S. Approved-Pullorum Clean

Free Illustrated Catalog

SUNBEAM HATCHERY

Box 40 Findlay, Ohio

HAMPSHIRE SHEEP

Grand Champion wether 1951 & 1952
Grand Champion pen wethers 1949 and 1950 Chicago International

Information and breeders list

AMERICAN HAMPSHIRE SHEEP ASSN.

72-Q WOODLAND AVE., DETROIT 2, MICH.

HARRIS' FAMOUS NORTH STAR CORN

AN EARLY HYBRID SWEET CORN

With the Fine Quality of Midseason Varieties

Introduced and sold exclusively by Harris, North Star has proved to be a money maker wherever it is planted in the North and is equally popular with home gardeners. It's early (67 days from planting to picking); attractive in appearance. The texture and flavor are comparable with the best midseason varieties and yields are enormous. The vigorous seed germinates in cold soil and the husky plants stand up well under adverse growing conditions.

Send for Our Free Catalog

It's a guide to the best of the new as well as the standard varieties of vegetables and flowers for home and market gardeners.

If you grow for market, ask for our Market Gardeners and Florists Catalog

JOSEPH HARRIS CO., INC.

4 MORETON FARM ROCHESTER 11, N. Y.

1954 CATALOG *now ready*

the soil improvement picture by more spectacular performers like concentrated high nitrogen fertilizers.

To get the most production out of your land and the fertilizer you buy, you should do a good liming job. Here's how:

1. Have your soil tested. Your state soil testing laboratory will test your soil and make recommendations.
2. Apply good agricultural limestone.
3. See that lime is evenly spread.
4. Make two spreadings if possible—one before plowing and one after plowing. This will get lime distributed in the plow layer so that more plant roots will reach it.
5. Have your soil tested for lime every five years or oftener.

THE AUTHOR: Dr. Aaron Baxter, a native of Alabama, has been an agronomist with Coke Oven Ammonia Research Bureau of Columbus, Ohio, since 1949. He got his B.S. degree in Agriculture from Alabama Polytechnic Institute in 1938. After graduation he served Alabama Polytechnic as assistant agronomist and soil surveyor until he entered the army in 1941. He received the Ph. D. degree from Ohio State University in 1950.

SUGAR COATED FEED

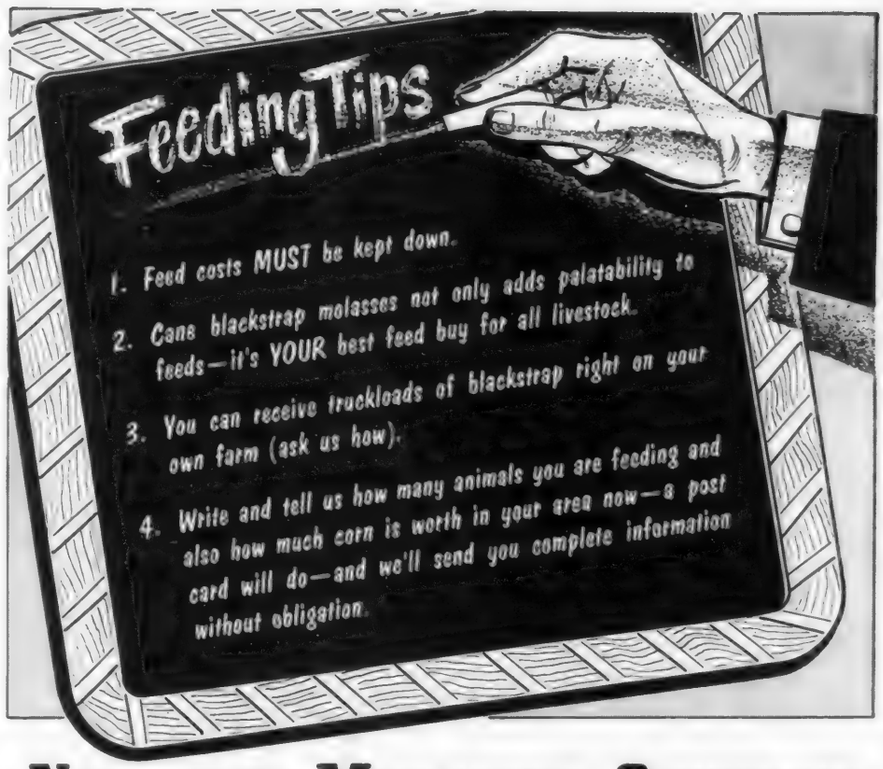
(*Continued from page* 41)

almost any type of equipment, even a pump to which an attached hose ends in a flattened pipe for a nozzle. Some sheepmen, conscious of the value of molasses in preventing pregnancy disease as well as lamb apoplexy, merely spread it in a broad, shallow ribbon in feed troughs, but a great many feeders prefer to mix it with feeds into a dry, crumbly mass.

"In mixing blackstrap, never mind the measure of water," says Don Sigg of Landen Farms, Foster, Ohio, where 300 Shorthorns are on show rations that sometimes bring three pound daily gains in calves. "Just get a moist feed that won't ball up. We pour about two quarts of molasses in with something like four times that much water and bucket it over 100 pounds of feed in a little 4x4 foot mortar box and mix it with a shovel. Of course you do get a fly problem in summer, but screens and insecticides check that. In winter blackstrap is pretty slow-moving stuff, but if you put a tire valve on the drums and give them a little pressure with a tire pump, it runs ok."

For home grinding, molasses cylone mixers are not expensive. Molasses, dripping on a disk revolving at high speed inside the cyclone of a hammermill, coats the ground feed with a fine spray as it falls through.

Jeep-mounted gravity tanks of 250 gallon capacity render distribution to pasture troughs easy. Expensive, covered self-feeders are unnecessary as rainwater stays on top of the molasses and is consumed by cattle in getting at the syrup, which is unharmed. To minimize wastage, self-feeders are best equipped with a simple floating rack of slatted boards or with one or more lengthwise rollers made of four inch poles, which make the animals lick rather than dip into the molasses.

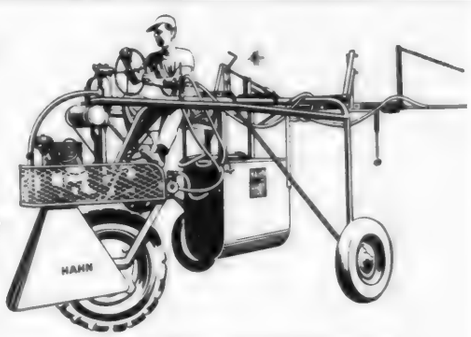

Feeding Tips
1. Feed costs MUST be kept down.
2. Cane blackstrap molasses not only adds palatability to feeds—it's YOUR best feed buy for all livestock.
3. You can receive truckloads of blackstrap right on your own farm (ask us how).
4. Write and tell us how many animals you are feeding and also how much corn is worth in your area now—a post card will do—and we'll send you complete information without obligation.

NATIONAL MOLASSES COMPANY

ORELAND, PENNA.

DISTRIBUTING TERMINALS THROUGHOUT THE COUNTRY

SPRAY HIGH-
SPRAY LOW-
with
Accuracy



THE HAHN HI-BOY

The easily-maneuvered Hahn Hi-Boy was designed exclusively for spraying. The high rigid frame with a quick adjustable boom height assures spraying of short or tall crops with equal ease. The Hi-Boy frame is of welded, tubular steel, and is powered by an 8¼ H.P. Wisconsin air-cooled motor.

The entire unit weighs only 1400 pounds, has easy-to-operate controls, and is equipped with the dependable Hahn gear pump.

The Hahn Hi-Boy sprays a larger variety of field and truck crops than any other spraying equipment.

For more information on Hahn Sprayers, just check the items that interest you, fill in your name and address, and mail to Hahn, Inc.

☐ HAHN HI-BOY—For spraying short or tall crops.

☐ HAHN TRACTOR-MOUNTED SPRAYER—Seven years experience building the easiest-mounted and the most accurate spraying tractor boom sprayer.

☐ HAHN UTILITY SPRAYER—For hard-to-get at spots where boom sprayers cannot be used.

☐ HAHN TRAILER TANK SPRAYER—Custom-built for all crop and brush spraying.

☐ HAHN PUMPS—Simple to use—all purpose P.T.O. pump.

Please send me more information on items checked.

NAME .....

ADDRESS .....

315 N. NINTH AVENUE
EVANSVILLE 13, INDIANA

HAHN INC.

They Work Like Magic!

BLUE RIBBON *Emulsion*

IN THE SELF-FEEDING BOX

This energized feed supplement, with its condensed buttermilk base, is a proven money-maker for poultry raisers. It gives chicks and poults the milk vitamins, the extra minerals, the extra proteins needed for resistance to disease, and fast, thrifty growth. Excellent also for layers and broilers.

BLUE RIBBON *Condensed Whey*

IN SELF-FEEDING BOX

Rich in milk vitamins and other important nutrients, Blue Ribbon Condensed Whey helps poultry and turkeys get more value out of the mash and grain they eat. It whets the birds' appetites, conditions their digestive systems for fast growth and maximum production.

• *Ask for Blue Ribbon at leading dealers*

THE MERCHANTS CREAMERY CO.
536 Livingston St., Cincinnati 14, Ohio
Plants throughout the Central West States

BEEF FROM ROUGHAGE?

BEEF FOR 18c A POUND was made on COBS and CORN STOVER at IOWA STATE COLLEGE. A TON OF BEEF from an acre of corn was recorded at PURDUE.

THE DEKALB MOLASSES FEED CO. duplicates the bacteria stimulating qualities of PURDUE SUPPLEMENT "A" and IOWA "3-A" in its RUFF-AGE BUSTER SUPPLEMENTS. No trashy fillers — DEKALB FEEDS are ALL FEED.

Do YOU want more gain from YOUR cheap farm roughages? Write for new free folder, "CHEAPER BEEF FROM ROUGHAGE FEEDING."

DEKALB FEEDS

DEKALB MOLASSES FEED CO.
DeKalb, Ill.
Rock Falls, Ill.

Sugarcoating Pastures

The spraying of molasses on pastures, stubble fields and windrowed straw is not difficult. Molasses is diluted about one-fourth its weight in water, so any orchard or field sprayer, even a shoulder sprayer, will handle it satisfactorily, provided suitable nozzles are used. Experienced feeders spray forage according to the density of growth and the number of head to be pastured, with the object of furnishing 2 to 3 pounds of molasses per cow daily, or ⅓ to ½ pound per sheep, or from 150 to several hundred pounds of molasses per acre. Spraying of pastures must be done daily, on the acreage required that day, or fermentation may result. Diluted syrup should never be left in sprayers more than a day or so, just as feeds moistened with it must be fed immediately, for after dilution molasses tends to ferment in warm weather.

Commercial Mixtures

Screenings, beetpulp, oat mill feed, corn-germ meal, and a vast variety of other highly absorbent materials are used by processors to combine with molasses to make dry, easily handled feedstuffs, sometimes containing as high as 75 per cent molasses. Many feed manufacturers use brewers' spent grains (mostly barley, sometimes rice and corn grits) from which the sugar and starch have been removed. These are dried then mixed with molasses while hot, to create a sweetened ration of varying protein. One feed stuff combines molasses and gelatin in a jelly-like material. Dried molasses feeds come in cake, cube, pellet, and "sweet roll" forms. A very recent pelleted type is basically composed of trash remaining from cotton gin operations. Formerly wasted, these cellulose leftovers, when fortified with molasses and minerals, are expected to add as much to our feed supplies as the use of corn cobs have added in recent years.

Urea and ammonium salts, both more or less unpalatable, have teamed up with molasses in a mutually helpful liquid combination. Molasses is low in protein in which urea and ammonium salts offer inexpensive substitutes. The latter are converted by rumen organisms into proteins. Now on the market are ammoniated molasses as well as urea-molasses, sold under brand names like *Molatein* and *Promol*. The molasses in these products furnishes the sugar and minerals needed by the cellulose-splitting rumen bacteria for rapid growth in synthesizing proteins and B-vitamins from the ammonium salts or urea, which permits full use of cheap roughages like cobs.

These commercially mixed products decrease the hazard of overfeeding straight chemicals like urea, which require careful blending in rations. Such feeds are for ruminants only, but have the advantage over plain molasses in their higher protein equivalent, which runs from 15 to 30 per cent, and in that they flow more readily

NEW MEYER HAY CONDITIONER

Make HAY the MEYER way

Hay cured MEYER WAY is worth more to sell or feed. Stems dry fast as leaves...leaves stay on...hay retains color, protein and up to 300% more carotene (Vitamin A). Cuts and conditions hay at same time. Curing time cut in half—hay can be put up same day it's cut. Danger of sun burning, bleaching, rain spoilage is reduced. Features Exclusive Floating Rotary Pick-up that raises freely over rocks and terraces.

Write for FREE Folder and Prices Today!

MEYER MFG. CO.
BOX 7152 MORTON, ILLINOIS

MAKERS OF FAMOUS MEYER ELEVATORS

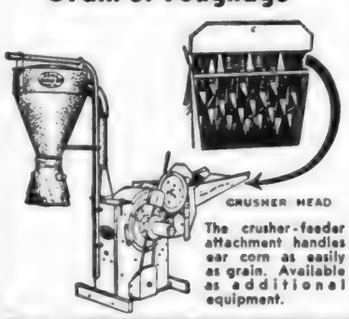
GOLDEN RULE BABY CHICKS

31 years of quality chicks and "Golden Rule" Service. Heavily Improved year to year with High Production R.O.P. Breeding. 18 popular straight breeds and crosses for Heavy Egg Production and Tender Juicy Broilers. U.S. App.-Pullorum Clean. Early Order Discounts. Write today for beautiful 24 page Instructive Catalog, It's free!

GOLDEN RULE HATCHERY
DEPT. 19 BUCYRUS, OHIO

The New and Better GEHL HAMMER MILL

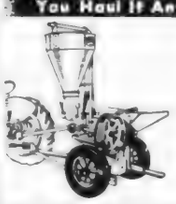
Handles ear corn Grain or roughage



CRUSHER HEAD

The crusher-feeder attachment handles ear corn as easily as grain. Available as additional equipment.

PTO Drive and Transport Lets You Haul It Anywhere to Grind



The PTO drive and 6 V-belt drive increases capacity up to 50%—with the same power. Fits most No. 41 Gehl mills. Easily attached.

WRITE for CIRCULAR

GEHL BROS. MFG. CO.
Dept. HM-591, West Bend, Wis.

☐ Send me FREE circular on the Gehl Hammer Mill.
☐ Send name of nearby dealer.

Name_____
Address_____
City & State_____

as a liquid. They can be stored, sprayed and mixed in the same manner as blackstrap. Experiments in Iowa and elsewhere show rapid gains in beef cattle and satisfactory milk production in dairy breeds from both types of the new feeds, and at a lower cost than with oilmeal proteins.

Swine, Fowl and Molasses

The subject of molasses in non-ruminant swine and poultry, though promising, needs further investigation. Tests conflict, with molasses being assigned values from 50 per cent to 100 per cent that of corn. Most of the poor results that have been attributed to the use of molasses in feeding swine have very likely been due to too heavy feeding of the syrup and failure to adjust the diet properly when the molasses was substituted for grains. Mixtures of molasses with oats seems to produce much better results in feeding pigs than do mixtures of molasses and corn.

Experiments have indicated that the most efficient levels of molasses used in pig rations seem to be: For weaning pigs—10 per cent of the ration. For pigs weighing 80 to 100 lbs.—20 per cent of the ration. For pigs weighing 100 lbs. or more—20 to 40 per cent of the ration.

The pantothenic acid and niacin in blackstrap are particularly needed by poultry, but incorporation of molasses in their rations is a job for the manufacturer who has the heating and mixing facilities to thoroughly distribute the quantities of molasses they can assimilate. When properly incorporated in the feed of fattening poultry to the extent of about 10 per cent of the ration, molasses can take credit for producing more rapid gains and in aiding in the development of a deep yellow color in the skin and flesh. The use of molasses as a substitute for as much as 7.5 per cent of the cereal grains in rations for layers will usually cause an increase in egg production and a decrease in mortality.

The use of blackstrap as a sweetener and preservative in grass and legume silage is a common practice, applied by gravity drip tank or sprayer as the silage is chopped or elevated. The recommended minimum amount is five gallons per ton of green weight.

How Much Does It Cost?

The price of molasses, which has always been geared to the price of alcohol, seldom reflects its feeding value. For many years it was principally used in alcohol manufacture. In the past two years synthetic alcohol cheaply produced from petroleum wiped out an enormous market for molasses and left distilleries idle all over the country. Blackstrap declined from a high of about 35 cents a gallon at New Orleans in 1951, to a low of 9 cents in October, 1952. Record sugar cane crops and poor demand will cause supplies to exceed requirements for some time, despite the fact that more than double the amount was used for feed in the first three months of 1953 than during the same period of 1952. Over 300 million gallons will be fed this year.

In September the price was 11½ cents a gallon FOB New Orleans, or about 15½ cents a gallon delivered by tankcar to St. Louis, with some changes in price for delivery to other points. On a feed-equivalent basis, molasses has been less expensive than corn in all but two of the last fifteen years. In the first quarter of 1953, it was $1.09 cheaper per bushel of corn equivalent, since nutritionally 6½ gallons is worth a bushel of corn.

Blackstrap weighs around 11.7 pounds a gallon according to temperature, and about 171 gallons make a ton. The most economical unit of purchase is by tank car or tank truck. The cars hold 6,000 to 10,000 gallons. The trucks usually deliver from 2,000 to 3,000 gallons, but some will deliver as little as 500 gallons, with a present price average of $31.50 a ton (about 18½ cents a gallon) in the midwest. Drums of 55 gallons are available in most parts of the U. S. at prices varying from 15 cents to more than 30 cents a gallon, according to distance from sources. Split drums or small

Weevils eat the HEART out of your corn...Protect your stored grain with Pyrenone*

GRAIN PROTECTANT

When weevils and other storage insects get through with their destructive work in your corn crib, they have eaten the heart out of your corn. It weighs less, it has less feeding value and it is worth less. But you can protect stored corn from weevils – *for an entire storage season with only one application* – even in open cribs! Use Pyrenone Grain Protectant.

Only 10 pounds of Pyrenone Grain Protectant will treat 100 bushels of corn – shelled corn, ear corn or even corn in the shuck. Of course, the Protectant can't get through the shuck to kill, but it will kill off the weevils that try to move from one ear to another and in even this way the Pyrenone will more than pay for itself. And on the ear corn and shelled corn, the Pyrenone gives excellent protection.

Yet Pyrenone Grain Protectant has no hazards to you when you apply it, to your livestock when you feed treated corn, to your corn that is used for seed, or for the corn you may sell for milling. That's because Pyrenone is non-toxic to people or animals–but death to weevils!

Protect your corn – not only its weight and appearance, but also its food value. Corn in the crib is like money in the bank – it must be protected!

Photo above illustrates the difference in weight between Pyrenone-treated corn at left and the corn at right which has had the heart eaten out of it by weevils. Even more important is the loss of nutritional value represented by this weight loss, for the weevils destroy the best part of the grain.

Order Today! **U. S. Industrial Chemicals Co. Division of National Distillers Products Corporation, manufacturers of Pyrenone insecticides for the farm, food processing, transportation, storage and allied fields.**

Pyrenone*

*Reg. U.S. Pat. Off.

GRAIN PROTECTANT

Pyrenone® Wheat Protectant, a product made especially for wheat, is also available. Professor D. A. Wilbur, Kansas State College Entomologist, says: "1952 farm tests outstandingly favorable for Protectant treatment."

World's Only SELF-PRIMING
Deep Well Jet Pump
Jacuzzi DEEPRIME JET
SELF-PRIMING WATER SYSTEM
Jacuzzi does it again!

Greatest invention in pumping equipment since Jacuzzi originated jet pumps. Now for wells to 200 feet . . . a water system without any inaccessible valves or motor below ground to clog or corrode. Completely self-priming—even on gaseous or low-capacity wells or in event of power failure. It's fully patented. Exclusive with Jacuzzi.
Originator of Jet Pumps
Jacuzzi BROS. INC.
Get the facts! Don't buy any pump till you read new bulletin "JDJ-1." Write: Jacuzzi Bros. Inc., Richmond, Calif., or St. Louis 23, Mo. Dealers nationwide.

BOWSHER
PORTABLE and STATIONARY FEED MILLS
Give You FASTER LIVESTOCK GAINS
Don't burn Your Corncobs! . . . Turn them into profitable Low-Cost Roughage with a BOWSHER MILL . . . perfect for grinding corncobs, ear corn, shucky corn and shelled corn, giving a granular product WITHOUT DUST.
GREATEST IMPROVEMENT IN GRINDER CONSTRUCTION
THE ORIGINAL CONE SHAPED BURR FEED GRINDER
TRIPLE ACTION • CUTS CRUSHES • GRINDS
Cone shaped burrs, two sets of knives give extra capacity up to 220 bu. per hour.

CUTS LABOR COSTS IN HALF
Hopper adjustable to three positions. Spout swings in complete circle, saving shoveling.
MAKES PERFECT CORNCOB POULTRY LITTER
Satisfaction Guaranteed . . . Write at once for circular and name of nearest dealer.
THE N. P. BOWSHER CO., Inc.
915 S. Webster St. • South Bend 21, Ind.

cans, of course, run higher, with feed mills charging 35 cents to over 50 cents a gallon.

Blackstrap can be purchased widely. Beet molasses, running up to 10 per cent protein, is available in some parts of California, Idaho, Colorado, and Michigan. Citrus molasses, lower in sugar than blackstrap but a little higher in protein, is transported by tank truck in the Florida area, while hydrol or corn syrup is available from corn products processors in Illinois and Iowa.

Good Keeping Qualities

Molasses can be stored indefinitely in covered steel, corrugated iron, wood or concrete tanks, but moisture must be kept out to avoid fermentation. Venting of tanks is necessary to permit escape of gases during prolonged storage, and drums, which should have two openings, are preferably stored in the shade. For figuring storage space, a round figure of 90 pounds per cublic foot is useful.

Most farmers report very little difficulty with molasses in cold weather if drums in current use are kept in a warm barn. Since the drums weigh around 700 pounds, it is wise to provide a rack made of 2x4's just high enough so the drums can be tipped into place for spouting the molasses into containers. In severe weather, any type of blanket insulation with or without thermostatically controlled electric heat tape can be applied to the drums for greater ease in flowing the molasses. A ground wire clamped to the drum is a safety precaution when heat tape is used. Underground tanks usually need only pump protection in winter while outdoor tanks require steam or other heat in some localities. Rotary pumps are best, operated slower than for water, with suction pipes usually 2 to 4 inches across, while discharge pipes are from 1½ to 3 inches. The average farmer finds he can handle molasses with whatever equipment he already has on the farm.

HOOKED RUGS

(*Continued from page* 73)

signer in this country and the author of the book, "How to Hook Rugs."

"About 17 years ago," says Mrs. King, "I decided to make hooked rugs for my entire house. I had never hooked before and could find no patterns of the type I wanted to use, so I went to several art museums to study the old rugs which were being exhibited. I had studied art since I was a child and had already done designing in other fields, but I had no idea when I started making my own designs just for fun that I would ever be selling them. I soon learned that a lot of other people wanted to hook rugs, but could not buy patterns of any individuality. It wasn't long before my friends, and their friends, persuaded me to start drawing their patterns, too. I suddenly found myself in business.

KEEP ANIMALS IN or OUT with SHOX-STOK
ELECTRIC FENCE CONTROLLERS

A MODEL FOR EVERY FENCING NEED
• 5-YEAR GUARANTEE
Save materials, labor and "chasing" time. A single wire fence powered with SHOX-STOK keeps livestock where wanted. High-line power unit $15.95; battery unit $12.95. Thousands in use. Write for literature and name of nearest dealer.
SHOX - STOK, INC.
509 Main Street
Wellington, Ohio

MORE PROFITS under AVERAGE FARM CONDITIONS
with TRULY DUAL PURPOSE
BEST in EVERY WEIGH MILKING SHORTHORNS

Under average farming conditions, Milking Shorthorns will give more profit because they convert home-grown feeds and roughage into meat, milk and butterfat most economically. A Milking Shorthorn holds highest butterfat record in world—also highest records on twice-a-day milking! Milking Shorthorns are BIG . . . have capacious deep body and mammary development of dairy cattle. Their TWO-WAY bargaining value plus greater salability of calves means greater farm security under uncertain world conditions. Get FREE facts or subscribe to Milking Shorthorn Journal. 6 months, $1.00; $2.00 per yr.; 3 yrs. $5.00.
AMERICAN MILKING SHORTHORN SOCIETY
313-FQ So. Glenstone Springfield, Mo.

Are you getting the most from your Farm?
Are the latest scientific and practical ideas being used on your farm—to produce maximum returns, yet conserve the resources for the future? Experienced Farm Managers consider this the first essential in planning a farm operation.
A trained Rural Appraiser can give you a detailed, written appraisal showing present value and long range possibilities.
Without obligation, write for full information and list of professional Farm Managers or Rural Appraisers for your area.
H. E. Stalcup, Secy.-Treas.
American Society of Farm Managers and Rural Appraisers
Box 67, Storm Lake, Iowa

There are certain points which have been followed, consciously or unconsciously, in designing good hooked rugs since the beginning of the art in America. Some of these principles of good design are rhythm, repetition, proportion and balance. They should be looked for when selecting a ready-made rug design and should be used by the rug maker who wants to draw her own pattern.

If you want to be your own rug designer—and it is not really difficult to design rugs—decide first on the exact size you want the rug to be when it is finished. Then plan your design to suit this area. If you want to use a floral design with a scroll border, for example, begin by experimenting with the "S" curve. Practice with a sweep of the arm until you can draw bold, graceful lines.

Materials and Where To Buy Them

The frame needed for hooked rugs may be home-made or one especially made for hooking. These are sold in the handicraft sections of department stores, or may be ordered from a company such as James Lees and Company, Ridgeport, Pennsylvania.

Plain burlap may be bought at department stores as may some designs. Unusual designs of good quality may be ordered from Kappy Neal, 1316 Cumberland Street, Little Rock, Arkansas; Mrs. Harry King, 255 North Eighth Street, Batesville, Arkansas; or Mrs. Louise Zeiser, 54 Irving Avenue, Providence, Rhode Island.

Most experts agree that the hook should be a fine one so that it will not stretch the mesh of the burlap too much. These may be bought at almost any department store. Most of the hooks on the market have a handle once or twice as long as the hand is wide. Those who have had one of the handles shaped like an awl will use no other kind even if a handle of other shapes must be altered or replaced.

Any material may be used in hooking rugs, but wool is the best. Do not mix wool with other fabrics if you want a long, evenly-wearing rug. Tweeds, checks, plaids or patterned materials produce an interesting effect in backgrounds. Paisley shawls are beautiful in hooked rugs. Jersey may be used, but should be mixed with other materials to prevent an otherwise loopy effect.

After all the woolen scraps and clothes of the family, friend and kin have been collected, the needed colors may be filled in from standard sources. There are the wool cutting houses listed in city directories as "Waste". Some of these will help you pick your colors at regular price, some charge slightly more per pound for small quantities. Rummage sales in larger towns furnish the cheapest market; after soap, disinfectant, a washing machine and a hook needle are through with rummage sale material, it is as colorful as any.

Many hookers like to do their own dyeing to produce the exact shades they need. Many shades of the same color may be obtained from the same pot of dye. For example, let one batch of wool stay in the dye two minutes to achieve the lightest shade. Remove the next batch in four minutes for a slightly darker shade, and so on until you have as many shades of the color as needed.

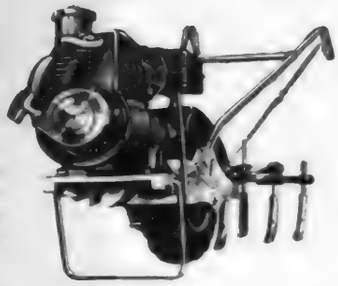
Experts recommend Putnam Fadeless Dyes, Monroe Chemical Company, Quincy, Illinois, or Cushing Perfection Dyes, Dover Foxcroft, Maine. Both dyes are considered to be "fast" and to produce good color quality.

Tips On Technique

"When I have all my materials collected for a particular rug," says Mrs. W. T. Wilcox of Defiance County, Ohio, "I tack my burlap firmly to the frame, then I cut into strips the material I'll be using for one particular area. There are cutting machines which make this work go faster. L. B. Gilbs of Clinton, Mass., supplies a four-strip cutter for $39. Mrs. Harry King of Batesville, Ark., sells a four-strip cutter for $10.50. One-eighth inch is a good width for most fabrics. If the wool is particularly heavy, though, it may need to be a little wider so that it will not

"Easy Does It"

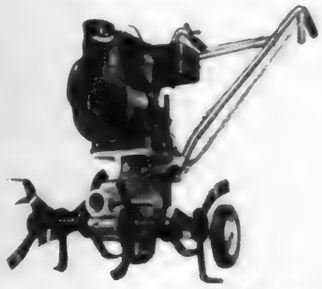
When you use a CHOREMASTER



One-Wheel Garden Tractor

Single power unit plus low-cost attachments makes power mower, cultivator, snowplow, sickle bar, other work-savers. Makes gardening even more fun!

1½ to 3 H.P. Low as $153.00. Freight Extra.



Garden Tiller

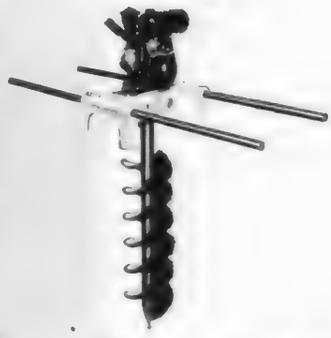
Easy to use, self-contained unit does all ground work in one clean sweep without attachments.

As Low as $129.50 for 1½ H.P. $133.50 for 3 H.P. Freight Extra.

Rotary Mower

With LOW-COST LEAF-MULCHER ATTACHMENT. Makes mowing and weed cutting fast, safe, easy! "Fine cuts" 18-inch swath. Quick change mulcher grinds leaves to fertilizer particles.

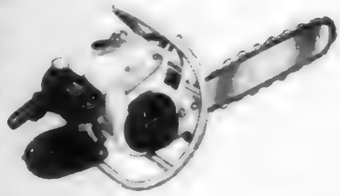
As Low as $95.50. Freight Extra.



Power Hole Digger

Power-driven. Just seconds per hole for fencing or transplanting. Works anywhere a man can walk.

As Low as $131.00. Freight Extra.



Chain Saw

Notches, fells and trims toughest trees fast! Powerful. Lightweight. Anyone can operate it . . . everyone can afford it. Truly trouble-free!

Just $239.50 complete. Freight Extra.

Save time, space, money with CHOREMASTER!

Write *Today* for dealer name, *Free* literature.

CHOREMASTER DIVISION

WEBER ENGINEERED PRODUCTS, INC.
806-4 EVANS ST.
CINCINNATI 4, OHIO

DO
WINTER CHORES
FASTER!

Stop costly slippage of belts in grinders and in pulleys from tractors to elevators, saws and other stationary equipment with

PULMORE

LIQUID BELT TREATMENT

This more effective *liquid* belt conditioner increases traction 200 to 500% — and speeds up countless jobs on the farm. PULMORE also weatherproofs, waterproofs and oilproofs belts, tarps, boots and other articles made of canvas, leather, rubber or composition materials.

At your dealer's. Get some today! Write for free illustrated circular!

BELTRACTION COMPANY
1819 W. Winona St. Chicago 40, Ill.

VOGEL
PATENTED

FROST-PROOF HYDRANT

- Will never freeze when properly installed.
- Running water available all year 'round.
- Reduces fire hazard.
- Increases operating efficiency.
- Over a million Vogel Frost-Proof Closets and Hydrants have been sold.

The handle in this position shows at a glance that the water is positively shut off and is your guarantee against freezing and leakage.

★

VOGEL No. 4 FROST-PROOF CLOSET

Will never freeze when properly installed. A great convenience when installed in an out building or on a rear porch of a residence.

Vitreous China bowl is very durable and easy to keep clean. It is so constructed that it will never freeze. No Mechanism in tank to get out of order.

Joseph A. Vogel Co.
Wilmington 99, Del.

JOSEPH A. VOGEL CO.
Wilmington 99, Del.
Please send information about Vogel frost-proof closets and Vogel frost-proof hydrants.

NAME .....

ADDRESS .....

TOWN ..... STATE .....

ravel apart. Strips that are too wide, however, have a loopy effect and make the texture of the rug coarse."

Here are some of the techniques which aid in producing a fine rug:

1. Hold the hook in the palm of the hand. This position is less tiring than if you use your fingers to hold the hook as you do in crocheting.

2. Your other hand holds the strip of material to be hooked underneath the frame, against the burlap, and beneath the part of the design to be hooked. The thumb and forefinger hold the material and the rest of the strip may be held between the third and fourth fingers which helps control the height of the loops. Be careful to keep the material smooth against the burlap and prevent it from twisting.

3. The hook, point away from you, goes down through the burlap mesh, picks up the material (which to start with is held over your finger) pulling it to the top for about ¼ to ½ inch. This will be clipped even with the loops later. Continue to hook the rest of the strip of material, pulling it through to the top. All ends are pulled to the top side of the burlap. There should be no ends left on the wrong side of the rug.

4. The hand holding the material moves along under the burlap while the hand holding the hook works with a twisting, pulling movement as it picks up the material and draws it through to the top of the pattern.

5. You should hook according to the weight of the material. If the woolen is thin, then go into almost every mesh of the burlap. When you use a heavier material you will have to skip a few spaces in the burlap. Never pack the loops too tightly together or the rug will be stiff. The life of the rug depends on the life of the backing and if you overload the backing, your rug will not wear as well.

6. While hooking in one direction, never cross underneath as you do in some kinds of needlework. Always clip your material where you wish to end and then start in another area.

7. Never hook in straight lines unless doing a border in orientals or geometric designs. Hooking straight lines gives a very set look to the rug and takes away from the artistic and professional look you want. Leaves and flowers are hooked according to contour and background is hooked to follow the contour of the outer edge of the design. Do not hook backgrounds in straight lines.

8. In general you work from the edge inward toward the rug center and work the outline of the patterns first, filling in the solid-color effects when all the outlines are done. This prevents puckering.

There is practically no wear-out to hooked rugs. Many rugs over 100 years old are still in use. If a vacuum cleaner is used on a rug don't vacuum the underside, for this may loosen the backing. And

How to *Make Money* ON LIVESTOCK TODAY

GRADY COLE, farm expert whose news and advice is a daily "must" to farmers who listen to Radio Station WBT, Charlotte, N. C.

"The only way to make money on livestock today is to cut feeding costs to rock bottom. Many farmers are cutting corners by feeding less expensive grain and by making maximum use of roughage during the winter period."

But remember this — any feed ration you choose may be deficient in the salt and trace minerals so essential for economical production of milk, fat growth and profit.

So economize — *yes*. But take no chances. Allow all animals free access to STERLING *Trace-Mineral* BLUSALT to assure them of the salt they need plus these important trace minerals: **Cobalt** for Vitamin B_{12} . . . to guard against loss of appetite and stunted growth. **Iodine** . . . to help prevent simple goiter. **Manganese** . . . necessary for successful growth, reproduction and lactation. **Iron** . . . and **Copper** . . . for the blood. And **Zinc** . . . growth producing and a part of the enzymes.

STERLING *Trace-Mineral* BLUSALT is sold by authorized dealers everywhere. For the name of your dealer — or for literature on Blusalt — write:

INTERNATIONAL SALT CO., INC.
Scranton 2, Pa.

Feed STERLING *Trace-Mineral* BLUSALT

100-lb. bags
50-lb. blocks
4-lb. liks

BINDERS FOR YOUR COPIES OF THE FARM QUARTERLY

Sturdy leather drill binders, stamped with "The Farm Quarterly" in gold, on the front cover and backbone, hold a year's copies. Will keep your copies clean and look handsome on your bookshelf or reading table.

The Farm Quarterly,
22 East 12th Street, Cincinnati 10, Ohio

never shake or beat a hooked rug.

If the rug becomes terribly dirty and you feel it must be shampooed, first remove any spots with regular cleaning fluid. Then prepare a lukewarm suds with some mild soap. Using a small brush, scrub quickly over a small area of the rug, being careful not to wet the rug through to the backing. Wring out a piece of Turkish toweling in clear water and sponge off the soapy surface at once. Repeat this all over the rug, overlapping each section so as not to leave soap rings. It is important to work quickly so that the backing does not become damp and so that insecure dyes have little chance to run.

When the rug is rinsed, roll it right-side-out in several layers of newspaper and press gently to remove as much excess water as possible. Never fold a hooked rug and never fold it wrong side out. Always dry it away from intense heat of any sort.

At the first sign of pulling out of loops or a break in the backing, repair the damage immediately, for one loose loop begets another. When the loops only are pulled out, the strips can be hooked back in easily. When the backing is damaged in the body of the rug, however, rip out the hooking in the area for at least an inch beyond and all around the worn part. Then baste to the under side of the rug a piece of new burlap large enough to cover the hole and the ripped area beyond. Reproduce the old design as closely as possible

By using your imagination and following these few techniques in making and caring for hooked rugs, you can put your rag bag to practical use and satisfy your desire to create an artistic addition to your own home.

THE AUTHOR: A native of Kentucky, Margaret Doty Pieratt now lives in Cincinnati. Besides writing and hooked rugs her hobbies include antiques, tutoring, golf and travel. After receiving her degree from the University of Kentucky she taught in the high schools of DeRidder, La., Charleston, W. Va., and Ashland and Raceland, Ky.

CATTLE WITHOUT CASH

(*Continued from page* 35)

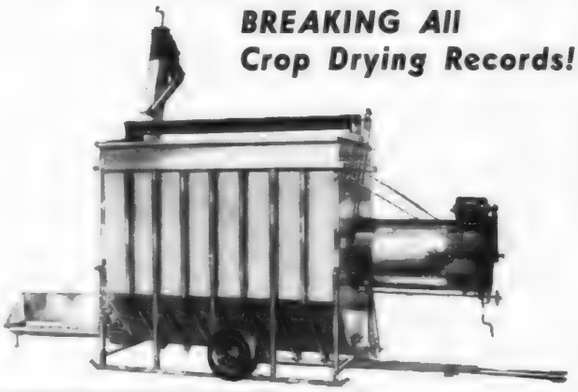
But for every one of these there is a satisfied customer. Max has a large following of expert feeders in western Iowa, eastern Nebraska and southeastern South Dakota who stick with him year after year.

Ralph Boals, currently fattening some 300 steers in his lots near Dakota City, Nebraska, is one of these. "I like this contract feeding," Boals readily admits. "What it comes right down to is that I'm gambling with Max's money and he's gambling on my experience. You have to work with a man who knows the game, though. I'd hate to be hooked up with a fellow who didn't know anything about feeding."

In Boals' case, as in most of Rosenstock's deals, the feeder buys the cattle and title passes to him, though he actually puts up little or no cash. In the typical arrangement the feeder buys the

Behlen the BIG Name in Crop Drying Crop Storage--Crop Conditioning

BREAKING All Crop Drying Records!



Behlen COMBINATION DRYING TOWER and HEAT BLOWER

- FAST DRYING
- EFFICIENT DIRECT HEAT
- "FULL CYCLE" GRAIN HANDLING
- COMPLETELY PORTABLE
- LOW FIRST COST

Behlen All-Metal Rectangular Corn Crib
Made of ¼" diameter steel bars. Mesh corrugated for extra strength. Completely prefabricated. Comes in 4-ft. sections.

Behlen All-Metal Round Corn Crib
Same heavy bar mesh. Rust resistant. 3 sizes: 1022 bu., 1500 bu., and 1930 bu.

Behlen All-Steel Ventilators and Tunnels
Heavy steel bar mesh tubing helps dry corn no matter how you store it. Millions of feet in use.

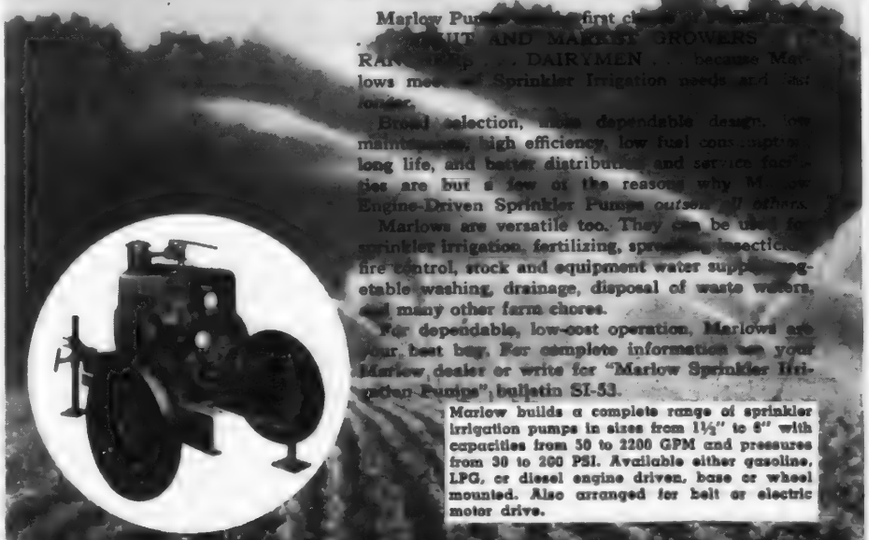
Complete unit with all available accessories

Dry your shelled corn or small grain with a Behlen Combination Drying Tower And Heat Blower.—The one drier the average farmer can afford to own and operate. Reduces moisture content of 350 bu. from 25% to 15% in as little as 1½ hours with 12 h.p. gasoline engine, or 2½ hours with 5 h.p. electric motor. Fuel cost?—Less than 1½c per bushel. Heat Blower generates up to 2,000,000 B.T.U.'s per hour. All heat goes to grain; never any "stack loss." Models for propane, natural gas, or fuel oil. Elevator system (eliminates all grain shoveling) and wheels for towing, are optional. See how Behlen Drying Tower Combination fits your operation. Write today for full descriptive literature.

BEHLEN MFG. CO., Dept. FQ, Columbus, Nebraska

for Sprinkler Irrigation

MORE PEOPLE BUY MARLOWS *than any other* Engine-Driven PUMP



Marlow Pumps were first ... FRUIT AND MARKET GROWERS ... RANCHMEN ... DAIRYMEN ... because Marlows meet all Sprinkler Irrigation needs and last longer.

Broad selection, sturdy dependable design, low maintenance, high efficiency, low fuel consumption, long life, and better distribution and service facilities are but a few of the reasons why Marlow Engine-Driven Sprinkler Pumps outsell all others.

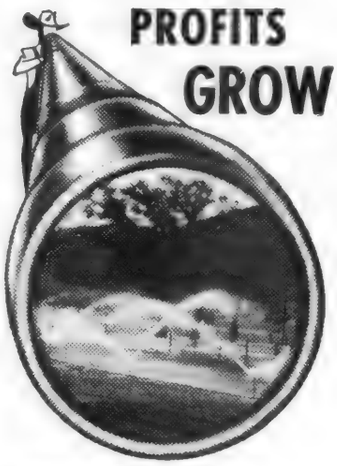
Marlows are versatile too. They can be used for sprinkler irrigation, fertilizing, spraying, insecticide, fire control, stock and equipment water supply, vegetable washing, drainage, disposal of waste waters, and many other farm chores.

For dependable, low-cost operation, Marlows are your best buy. For complete information see your Marlow dealer or write for "Marlow Sprinkler Irrigation Pumps", bulletin SI-53.

Marlow builds a complete range of sprinkler irrigation pumps in sizes from 1½" to 8" with capacities from 30 to 2200 GPM and pressures from 30 to 200 PSI. Available either gasoline, LPG, or diesel engine driven, base or wheel mounted. Also arranged for belt or electric motor drive.

MARLOW PUMPS RIDGEWOOD, NEW JERSEY
Branch Plant: De Queen, Arkansas
Other Factories in France and England Distributors and Dealers everywhere

WATCH YOUR
PROFITS
GROW



AMES ROTO-RAIN

Portable Irrigation

ROTO-RAIN is right for you because it's engineered to your needs. Right from the start it means bigger and better crops . . . savings in water, time and labor.

Ames ABC-Coupled aluminum pipe is automatically locked and sealed by water pressure. No troublesome hooks or gadgets. 22° flexibility at joints to follow field contours.

For full details and free planning service, get in touch with your Ames dealer, or write nearest Ames plant.

ROTO-RAIN • TOW-A-LINE
PERF-O-RAIN • GATED PIPE

W. R. AMES CO.
Established 1910
150 Hooper St., San Francisco 7, Calif.
3905 East Broadway, Tampa 5, Fla.

More thorough
INOCULATION for all your LEGUMES

The LEGUME-AID package is appreciably larger than others in size and contains more of the bacteria-carrying humus. This extra amount of inoculant makes it easier to treat your seeds more thoroughly at planting time.

LEGUME-AID

Whether planting clover, alfalfa, lespedeza, peas, beans, lupines or any other legume, it pays to assure maximum nitrogen fixing power by treating seeds with the famous "Inoculant in the Carton." LEGUME-AID is neither sticky nor gummy. It pours freely, clings to seeds closely, yet never clogs the drill. Ask your seed dealer, or write us direct.

AGRI-LAB, INC.

AGRICULTURAL LABORATORIES, Inc.
1310 Chesapeake Avenue Columbus 16, Ohio

cattle at an agreed price per pound, 20 cents, for example, and Rosenstock guarantees to buy them back, paying 20 cents for the original weights plus so much per pound for the gains. In some instances that is all the feeder has a chance of making out of the contract. In others, the contract calls for a split between Rosenstock and the feeder of any profits made over and above the guarantees. Rosenstock usually leaves $4.00 to $5.00 per hundred in the cattle; that is, on 800 pound cattle at 20 cents, he might put up $30 to $40 per head and the feeder gives a note and mortgage for the balance. Sometimes Rosenstock handles the financing, rediscounting the note.

The Rosenstock contracts usually require that the feeder "agrees to feed these cattle all the corn, hay, and other feed necessary for the best gain and handling" for a specified period, and the feeder has the option, usually until midway of the feeding period, to decide whether or not he wishes to rely on the guarantees or to handle the cattle strictly as his own. Rosenstock usually determines the time and place of marketing the cattle he is guaranteeing, and the feeder "agrees to pay for hauling as well as all other expenses in connection with the marketing of these cattle on the day or days of sale."

Boals shoots for a gain of about 2.3 pounds per head per day at a cost of about 27 cents per pound at present prices. That's the price that most farmer feeders were figuring they'd have to get for gains this fall.

The Big Split

Bill Brown cites the case of another well satisfied contract feeder. Brown is president of the Sioux City Live Stock Exchange. He takes a more or less indifferent attitude toward contracting, feels it has its place in the cattle business, but that the parties should proceed with the utmost caution in all cases. "Contracting is a way of moving cattle from range to feed lot at an inventory price," he says, "and that price is usually a stiff one. Many a head of cattle is contracted at a price that the feeder would never agree to if he were putting up the cash for the deal. And even more important than the price is the weight. The feeder must be sure he is getting his cattle laid in at the right weights."

But to get back to the case of Brown's friend. He's a South Dakota farmer we'll call Paul Franklin. Franklin was a very cautious individual. He had been building up his land, he had lots of grass and plenty of feed, and he wanted some experience with some big lots of cattle. Up to this time, which was about four years ago, he had never handled more than 50 head at a time. So he decided to feed a bunch of 400 cattle and let someone else share the risk with him on a contract deal where he was able to get a share of the profits over and above the original in-

KING WYSE INC
FORAGE HARVESTER with CORN and HAY attachments!

CHANGE FROM ONE CROP TO ANOTHER IN MINUTES!

- Windrow attachment is extra wide for gathering hay or straw.
- Corn head cuts, chops and loads standing corn, other row crops.
- Choice of Power Take-Off or Gasoline Drive.
- Ruggedly built; anti-friction bearings throughout.

Write for Literature . . .

KING-WYSE, INC. • ARCHBOLD, O.

GROW BETTER CROPS...

Get the most out of your seed and soil . . . read Crop News and Views. FREE 2 yr. subscription is yours for a post card to

Scott FARM SEED CO.
Locust Street
Mechanicsburg, Ohio

DEALERS INVITED TO WRITE FOR INFORMATION ON AVAILABLE TERRITORIES.

RAKES
PLOWS
CULTIVATES
HARROWS
HAULS
SPRAYS
SAWS
DOZER
MOWS
CUTS
ROLLS
TILLS
SNOW PLOW

ESHELMAN FOR Better LAWNS And GARDENS

Also walking tractors low as.. **$69**

1 to 8 H. P. Women Can Operate It. Low operating cost. Built for powerful and dependable service. Attachments for every job available at low cost. Tools interchangeable in two minutes. Write Eshelman for free catalog.

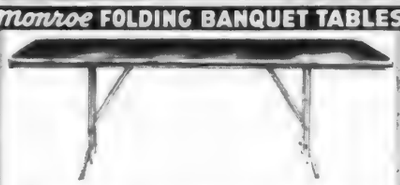
CAR SNOW PLOW CLEARS ROADS & DRIVEWAYS

This snow plow fits many car, jeep, truck. Attached in 2 minutes. Clears snow 24" deep and full width of car. Light weight, sturdy. Write for free literature.

$79.95 COMPLETE

ESHELMAN, Dept. 6412
119 Light St., Balto. 2, Md.
333 N. Mich. Ave., Chi. 1, Ill.
7070 H'yw'd Blvd., L. A. 28, Cal.

Monroe FOLDING BANQUET TABLES



If you are on the board of your school or church, or on the house or purchasing committee of your club or lodge, you will be interested in this modern Folding Pedestal Banquet Table. Write for catalog and special discounts.

THE MONROE COMPANY 11 CHURCH ST. COLFAX, IOWA

CRAYDEN'S CHICKS

Backed by 29 Years' Breeding for extra vigor, fast growth, quick feathering, superior meat quality, high production ability . . . all the qualities that help in making extra profits.

For MEAT or for EGGS

At Crayden's you'll find the right breed for your purpose whether it be meat production or egg production. Nine popular breeds—three crosses—sexed or straight run, give you a wide choice. Try Crayden's chicks and be convinced as so many successful growers have been. All breeders U. S. Approved—Pullorum Clean. Ducklings available, too. Illustrated literature tells the story—write for it.

CRAYDEN'S STERLING HATCHERY
Box F Ramsey, Indiana

vestment and a stipulated price per pound for gains. It turned out to be a pretty good deal all around. He and the other party split a neat little profit of $20,000. Those were the days when a man couldn't go wrong on cattle.

Watch Your Step

Not all deals work out that well, though. Iver Erickson is another South Dakota farmer who still has a bad taste in his mouth from a contract that didn't pan out so well some years back. "I had 100 head of cattle," he recalls. "When the selling date arrived the market was down and the dealer who held the contract persuaded me to hold on. I held on all right and I lost money on all the extra feed I put into them. That made me mad. I don't want any more contracting. I'd much rather be on my own."

J. C. Holbert, a big cattle dealer in eastern Iowa, is another man who urges caution on the part of the individual who is trying cattle on contract for the first time. Holbert knows his way around the cattle business about as well as any man. He buys from big Texas ranches and numbers scores of the best feeders in the corn belt among his steady customers. He is constantly in demand as a judge at cattle shows. In his opinion, equitable contracts can be worked out, but they are usually "mighty hard on friendship."

"Just to show you how a man might get sucked in on a deal," he'll tell you as he chews on the end of his cigar, "a fellow who always used to buy choice cattle from me came down to see me at Washington, Iowa, last fall. He said he'd been offered a deal to feed some cattle on contract. He was to get all the gains and the other fellow was to get the market price at the time of sale on the original weights. He wanted to know what I thought about it.

"I asked him what kind of cattle they were going to be. He said that he didn't know but he guessed they'd be all right.

"Then I asked him if he had ever sat down and figured the thing out. 'That fellow will give you some 15 cent cattle,' I told him, 'they may sell for as much as 16 and that's what you'll get.' He didn't take the contract."

According to Holbert there are only two really equitable feeding contracts: 1) a market contract with good top cattle, the feeder to get all the gains and reimburse the owner at a predetermined price on the original weights, the owner to stand any death loss to the extent of the original weights, the feeder to stand the loss on the gains; 2) a contract in which an agreed price per pound is paid for the gains. He is convinced that good cattle are essential to any feeding agreement. "The only time it pays to feed cheap cattle is when there is a ceiling on the good stuff."

Guide Posts

If you still feel you'd like to try one of

the best pipe by any test...

Yardley ClearStream pipe

...for every farm, cold-water piping need!

Compare before you buy. Then you'll agree that ClearStream is the quality plastic pipe for your cold-water system with big advantages over steel.

Thousands of installations—drop lines and lateral runs—are in the fifth year of trouble-free service. Now Yardley guarantees ClearStream M-2 pipe to be 100% virgin material with full weight and wall thickness meeting Approved Standards for the industry.

Made in all sizes, both flexible and rigid types. Full line of fittings. Send for literature.

FOR JET WELLS—TWIN-DU-IT
It's new, faster, better. Two joined pipes extruded and coiled as one in perfect alignment. Installs easy as a single pipe.

Yardley Plastics Co., Columbus 15, Ohio
In Canada: DAYMOND CO., LTD., CHATHAM, ONTARIO

Insist on ClearStream
Look for the Name on Every Length

Here's why...

Yardley ClearStream is preferred everywhere.

more water — delivers 25% greater volume for the same head loss.

long life — lasts for years because it won't rot, rust or electrolytically corrode.

light weight — 100 feet of 1" ClearStream weighs less than 20 lbs.—1/8 the weight of steel.

easy to install — long lengths, fewer fittings, no special tools, save up to 60% labor time.

top quality — made from specially-processed materials to exacting specifications in three modern plants.

OVER $60,000.00 PER YEAR
Above Feed Costs
RETURNED TO THIS FATHER-SON TEAM BY REGISTERED
GUERNSEYS

3 Generations of Successful Guernsey Breeders!
Right to left, C. Fred Ward, founder in 1904 of Lakemont Dairy, Orange County, Florida; Carroll L. Ward, owner of Lakemont Dairy since 1924; "Bud" Ward (Carroll L., Jr.), owner of nearby Lay-Laine Guernsey Farm.

Profits in Guernseys. At the turn of the century, C. Fred Ward — a native Vermonter — transplanted his family to a small, 2-cow farm in the Florida jungle. Today his son, Carroll, and grandson, Bud, own 270 pure-bred Guernseys, a valuable GOLDEN GUERNSEY Milk business, and a thousand acres.
A friendly contest is on between father and son, with each owning his own profitable herd. The DHIA report shows these results:

Herd	No. Cows	Lbs. Milk	Lbs. Fat	VALUE ABOVE FEED COST
Carroll Ward & Son	77	9920	483	$418
C. L. Ward, Jr.	75	9133	434	379

INCOME ABOVE FEED COST = OVER $60,000.00 PER YEAR

Road to success. How about starting yourself or your boy on the road to success — with profitable Guernseys?

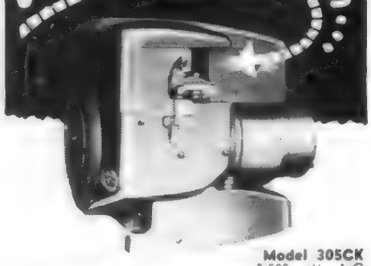
FREE... TO HELP YOU BUILD Your Own PROFITABLE BUSINESS WITH REGISTERED GUERNSEYS!

1 SUCCESS WITH GUERNSEYS. Leading breeders give facts about their own Guernsey profits.
2 28-PAGE GUERNSEY BOOKLET. Valuable information about America's fastest-growing breed.
3 NATIONAL GUERNSEY DIRECTORY listing breeders with foundation stock for sale.

CLIP! FILL OUT! MAIL TODAY!

THE AMERICAN GUERNSEY CATTLE CLUB
356 Main St., Peterborough, N. H.
Send FREE information listed above to:
Name.....
Address.....
Town.....State.....

When power fails—
or voltage drops—
Just push this button



Model 305CK
3 500 watts, A.C.

...on your
ONAN Electric Plant

Insure your electric power supply. An Onan gasoline-driven Electric Plant furnishes regular 110-volt electricity for lights, pumps, milkers, oil burner, freeze chest, etc., when storms cut highline power. Easy to install. 1,000 to 50,000 watts, A.C.

Also available: Onan A.C. Generators only (belt up to your tractor for power). 3,000, 5,000, 10,000 watts.

Write for Folder
D. W. ONAN & SONS INC.
7050 Univ. S.E., Minneapolis 14, Minn.
ELECTRIC PLANTS

A proved aid for
HARD-TO-BREED COWS
ask your veterinarian
about DINOVEX

When your cows fail to settle with frequent services, let your local veterinarian look over your herd. You may be wasting needless time and money. Your non-settling cows may have insufficient estrogen production. Dinovex supplements ovarian estrogen production during heat to aid conception in cows.

Dinovex is comparatively inexpensive, and good results are reported by many veterinarians. Be sure to get literature. See coupon below.

BOVINE SEMEN DILUTER

Another aid to conception, when artificial insemination is practiced, is Bovine Semen Diluter. You will appreciate the advantages of this ready-to-use product. Contains four anti-bacterial and anti-fungal agents as a safeguard against contaminants. Effective. Unsurpassed in convenience, safety and economy. For further facts, mail the coupon.

MAIL COUPON FOR FREE LITERATURE

Ortho Pharmaceutical Corporation
Animal Industry Division, Dept. FQ-W
Raritan, New Jersey
Please send more information on
_____Dinovex
_____Bovine Semen Diluter
Name_____
Address_____
Town_____State_____

these deals, be guided by the following precautions:

1. Have your contract in writing in as clear and simple terms as possible.

2. Know the party with whom you are dealing. This is a continuing personal relationship, in many cases as intimate as that of landlord and tenant. Many well drawn, equitable contracts suffer simply because of a clash of personalities. Both parties must be financially and morally responsible.

3. Feed only the best cattle.

4. Be certain you are getting a square deal on the weights.

5. Have a firm understanding about liability for death losses, veterinary expenses, marketing expenses, etc. This, of course, should be in the contract.

6. Figure your costs as accurately as possible and on the basis of these costs appraise your chances for coming out on the profit side of the deal.

7. If at all possible, try to get the advice of someone who has had experience with contracting and consignment deals.

8. Don't be seduced by the fact that the cattle "aren't costing you any money." One old hand at the game has said that taking cattle on contract is like buying clothes on credit. "You know you can't afford more than $75 for a suit, but you buy a $100 number, just because you don't have to put up the cash." Many a feeder has taken contract cattle at inventory prices that he would never think of paying if the cash were coming out of his pocket.

VEGETABLES AS A FIELD CROP

(*Continued from page* 65)

ones can bring about $30 a ton. The canners will tell you that the grower who gets high yields is usually the one who gets high quality. Warstler expects to harvest about 12 tons per acre year after year and have them grade at least 65 percent number ones. The average yields are six tons per acre; yields of 10 tons are considered excellent. Warstler's record yield was 18¾ tons per acre and some top growers have picked as many as 26 tons per acre. "I expect to net about $150 per acre from tomatoes," says Warstler. "An extra ton or two can make all the difference."

"In this business," he adds, "you're at the mercy of old man weather. Tomatoes need light, well spaced rains. They can't stand flooding or damp seasons. We especially want dry weather during the ripening season so fruit won't rot in the fields. There's an old saying among tomato growers that if the corn starts firing there will be a good tomato crop. As a general thing there's plenty of water in the early part of the season when the plants are growing and it gets dry later in the season, but we still don't expect to make out every year. That's why tomatoes aren't an in-and-out crop where you can make

David and LeRoy Light, LeRoy Light & Sons Farm, Cochranville, Pa.

Set to
COOL
MILK for Fifty Years

Mr. David Light, who milks 30 cows on a 220 acre farm near Cochranville, Pa. and uses a 150 gallon Mojonnier Tank to cool his milk, says, "I like the tank because it's all stainless steel and I won't have to buy another milk cooler for at least 50 years. It eases the milking chore too, and it's reduced my power bill $5.00 a month. Bacteria counts are down around 2,000. Bulk Cooler Bulletin 290 free on request.

MOJONNIER BROS. CO., Dept. Q-4, CHICAGO 44, ILL.
MOJONNIER BULK MILK SYSTEM

It's NEW
Announcing An
ELECTRICALLY
AND
STEAM HEATED
SPRAY
PASTEURIZER
25 to 200 Gal. Cap. by
VULCAN HART
MFG. CO.
2006 No. Western Pkwy.
Louisville 3, Ky.

Baby Geese
EXHIBITION STYLE

Massive market type White Emden, Gray Toulouse. Over 12 pounds, 10 weeks. Easiest, fastest, cheapest to grow. Large fancy market geese retail up to $13, produce up to $2.50 feathers. Protect fruit acreage. No buildings needed except for brooding. Live longest, fewest diseases, all farm stock. Eat mostly grass. Write

GOLDEN EGG GOOSE FARM
ROUTE 1-X, HAMPTON, CONN.

CHINESE CHESTNUT

For exclusive landscape designs: low growing, round headed, glossy foliaged, a bountiful bearer of delicious nuts. Write for our list of specimen trees. We have the largest block of large trees in America. Plant your farm slopes, steep knolls, naked hills. Get rich without plowing. Consultant service on tree crops and organic farming.

NUT TREE NURSERIES
Box "Y"
Downingtown, Pa.

TUBE STOODITE
protects all your
farm tools from wear!
This free FARM HARD-FACING HANDBOOK tells how! Write for your copy today.

STOODY COMPANY
11975 E. Slauson Ave., Whittier, Calif.

a quick killing. They're a good dependable one on the long pull though."

Other Canning Crops

There are other canning crops that make profitable field crops for the farmer in the right location, where he has the market and can meet the peculiar growing conditions. For instance, growing carrots can be a good business, but it's a specialized one. Properly grown, they will make 20 to 30 tons an acre, more than practically any other crop.

Fertilization depends on the soil but it's common to use 1500 to 2000 pounds of 5-8-16. Most carrots in small acreages are sown with a single row hand drill at the rate of two to three pounds of seed per acre. They'll have to be thinned to not more than 12 to 15 per foot in the best soils and fewer on less fertile soils.

Carrots are picked when they size up to the local market specifications.

The growing of canning peas stays largely in the northern states, for peas are a cool weather legume. They're grown mostly in Minnesota, Wisconsin, New York, Maryland, Washington, and Michigan. But you'll find canners too in a few other states. For instance, there's the Winorr Canning Company at Circleville, Ohio, which processes high quality peas grown by such farmers as Bruce Stevenson. He grows 100 acres of peas every year.

"Around here," says Stevenson, "peas are harvested in June and there's still time to grow lima beans in the same field or you can plant it to sweet corn, soybeans or corn for silage." Other growers like the fact that alfalfa can be planted right in with the peas and they produce a cash crop while their meadows are getting a start.

The canning company buys Stevenson's peas under contract. They're sold on seive size and sorted into six grades with the smallest peas bringing the highest price. Stevenson gets an average $75 a ton, and a ton to the acre is considered a good yield. A good pea crop should net its grower between $50 and $60 an acre. Last year Stevenson harvested about a ton and a quarter an acre.

He raises his peas in the fertile river bottoms along the Scioto River, land that regularly grows 100 bushel corn. Peas need a well drained neutral soil.

Stevenson likes his peas to follow corn instead of a sod crop. Weeds cause less trouble this way. "After we plow," he says, "we use a land leveler; its one of the best tools on the place. Then we drill in fertilizer and disk it down." The canning company supplies one half of his fertilizer, which is applied in keeping with soil tests. Last year he used 200 pounds per acre of 3-18-9.

"You should fertilize at least a week before planting," he says. "If fertilizer makes contact with the seed it may kill the bacteria used for innoculation."

The most common varieties grown for canning are Alaska and Perfection. In Stevenson's neighborhood the canner supplies the seed at a cost to the grower of three dollars a bushel. Peas are seeded at the rate of four bushels per acre for Alaska and four and a quarter for Perfection. The job is done with a grain drill at a depth of two inches with seed planted at the rate of 8 or 10 per foot in seven inch rows.

At the "peeping through" stage Stevenson goes over the field with a flat steel drag that rides on teeth to knock out young weeds and do a little more leveling without damage to the pea crop. That's the only cultivation they get.

The only insect control Stevenson had to use last year was one airplane spraying for aphids. This calls for one per cent parathion dust not less than 15 days before harvest.

No matter where they're grown, peas should not be planted in the same field more than once every four years.

Whatever the vegetable crop you choose to grow on a field basis, it's a good idea to bear in mind the words of Wallace Warstler. "You just do everything you know to do for a good crop," he says, "then keep your fingers crossed and hope the weather is with you."

Give your crops more real
Growing Energy
with Energized
Vertagreen®
ARMOUR
Vertagreen
Plant Food
For Commercial Crops
The extra plant food in every ton, every bag, every handful of energized Vertagreen means extra growing power—extra profits for you because you get bigger yields of finest quality crops. Farmers right in your own section have set new growing records, new profit records with this balanced, perfectly-blended plant food that feeds crops completely, gives them real growing energy from planting right through to harvest time. And Vertagreen actually costs you less in the long run. See your friendly Armour agent today! Ask him for Vertagreen in the analysis prepared especially for your crops and soils.
FEEDS 3 WAYS
ROOTS
STEMS LEAVES
FLOWERS, FRUITS VEGETABLES
Order Early! Prompt delivery may be difficult on late orders, and you want to be sure your Vertagreen is on hand when you need it!
ARMOUR FERTILIZER WORKS

Get a New Slant On SNOWDOZING

New prescription for your aching back — Midland Dandy Boy *easily* moving snow or handling 40 other jobs all-year-through. 2½, 3 & 5 hp. models, each with 5 speeds forward plus reverse. Write for name of dealer and *all* facts.

MIDLAND DANDY BOY
***All-Year* POWER UNITS**
THE MIDLAND CO.
Dept. FQ 4, South Milwaukee, Wis.

Accept No Substitute! **Insist on Original, Patented**

McDowell
IRRIGATION COUPLINGS

The First and Finest Patented Gasket-Coil Pressure Lock Design

In this unique design—water pressure provides a watertight seal automatically—at both high or low pressures. No tools required. No hooks, latches or gadgets. Faster and easier to use, the McDowell Coupling saves time and money.

---For Details, **MAIL COUPON TODAY!**---

Name_____

Address_____

_____

McDOWELL MANUFACTURING CO.
PITTSBURGH 9, PA.

FACE THE FACTS

(*Continued from page* 47)

"Organize under Federal legislative charter a private corporation to maintain this value by buying carry-over from any such crop. Such corporation may sell for export the exportable surplus at the world price, even if less than domestic price, and may sell for domestic consumption any of its carry-over at not less than the exchange value. Wheat, cotton, corn and oats are proposed for this plan."

In 1927 and 1928, Congress passed the McNary-Haugen bill and the President vetoed it. But the thread of agricultural policy which was born with this bill has persevered to this day.

After the bill's second defeat, the United States Chamber of Commerce sponsored a Business Men's Commission which created the idea of government sponsored corporations, with power to buy farm products at a price announced before the date of planting. Legislation for this died in a Congressional Committee.

President Hoover Was First

The first actual attempt to keep farm prices up, in the face of greater supply than demand, was created during the Hoover Administration. A half billion dollar fund was voted to the Federal Farm Board to buy grain and other commodities and thus take them off the market. Farmers thought this half billion fund meant a secure market, so they produced greater crops than ever. Trying to support the market, the Federal Farm Board lost its half billion, but not before it asked for voluntary acreage reduction.

Nothing seemed to work. Many people thought President Harding was right when he said you can't legislate supply or demand. Farm prices took a long time to build back to where they were before 1920. At the height of the 1929 boom, farm products could be exchanged for only 92% as much of other products as they could have commanded before 1920.

By 1932, this exchange value dropped to 58%. "We didn't take any movies of it," said Adolph Lucerne of Bayoutown, La., "but I won't forget. I called my sister and wife and we sat down on the porch. I said, 'We're not going to borrow a dime on our farm, and we aren't going to buy anything from anybody. We'll stay right here and live on what we got—sweet potatoes, corn, eighteen cows and 12 pigs.' And we did. If it cost 15 cents to go to town, we stayed home." In 1932, there was still no farm legislation to prevent collapses such as those of 1920 and 1930 from recurring. People had lively debates instead, as to whether there really was a surplus. "It's just bad distribution," they said. Secretary Henry C. Wallace, some years before, summed up the opposite point of view in saying:

"Some contend that there is no such thing as overproduction of farm products as long as there are people in the world who suffer for food and clothing. On the same line of reason-

2-Way LIGHTNING PROTECTION
FOR FARM BUILDINGS
Lightning never has destroyed any building fully protected by Security System. It guards against new perils of metal ducts, piping, etc. Uses most durable materials, all U.L. approved. Low points, neat, almost invisible.

FOR ELECTRICAL APPLIANCES
Green Guard Protective Capacitor is the only such device approved by Underwriters Laboratories, Inc. Holds lightning surges to *less* than line voltage, protects heaters, lamps, motors, etc. Guaranteed for five years. Send for full story. Security Mfg. & Contracting Co., Burlington 5, Wis.

SECURITY LIGHTNING PROTECTION IN THE MODERN MANNER

HK **SELF DUMPING TRI-TRALOR**
No hoist, hydraulic, or P.T.O. system to bother with.

Easiest maneuvering—mounts any farm box.
EFFORTLESS DUMPING IN 1/10th THE TIME ANYPLACE
HOTCHKISS STEEL PRODUCTS CO.
Dept. 23-L, Bradford, Ill.

BEARING AGE PLANTS

Why wait a whole year? Plant our bearing age fruit plants and eat plenty of fresh fruit from them *this year, 1954.*

Strawberries, raspberries in 3 colors. Blackberries, also fruit trees, shrubs, roses, Evergreens, perennials, azaleas, etc. Free Catalog. 20% Discount for early orders.

FREE CATALOG

SOUTH MICHIGAN NURSERY
Box K-1, New Buffalo, Michigan

EAR TAGS for LIVESTOCK
Tamper Proof Style

CATTLE size. Bright plated steel. Easy to apply and cannot be removed without breaking. With consecutive numbers and owner's name—not more than 11 letters.
100 tags—$3.75 200 tags—$6.25
Locking Pliers for cattle tags—$2.00 each

SHEEP size. Light, strong aluminum. With consecutive numbers and owner's name—not more than 10 letters.
100 tags—$3.00 200 tags—$4.50
Locking Pliers for sheep tags—$1.50 each

Specify numbers and name wanted on tags.
Write for catalog of other styles of Ear Tags, Ear Markers, Tattoos and Poultry Bands.

KETCHUM MFG. CO., INC.
Dept. 16 Lake Luzerne, N. Y.

AVERY
R. I. REDS and CROSSES

Are you plagued with broody birds? Stop to think how many more eggs you could have if all your birds kept producing. There are **no** sit down strikes with Avery's Reds. Very, **very** little broodiness in our sex-links.

Avery birds live too! Leaders at Contests! At 1953 Cuban National Contest, Havana, Cuba one of our Reds was Winner All Breeds, and 14 out of highest 20 were Avery strain.

Our pedigree breeding, year after year, assures you greater production and more profits.

Send today for free folder of more facts about our Contest and Farm-Proven, U.S.-Mass. Certified R.O.P. strain. (Much of our limited capacity is already booked by our old friends and customers, so don't delay.)

(We also have surplus cockerel chicks and Barred and White Crosses.

C. T. AVERY & SON
Rt. 12, Colrain, Mass.

ing, it can be argued that the production of automobiles will be inadequate until every man and woman and every boy and girl of high school age owns one. There is overproduction, so far as the producer is concerned, whenever the quantity produced cannot be marketed at a price which will cover all production costs."

Reduce Crop Production To Raise Prices

In 1933, the new Congress took the position that farm prices fell because of too much production and so set out to reduce the production. It did this in the Agricultural Adjustment Act (The Triple A) of 1933, in which millions of farmers entered into contracts to plant fewer acres of certain specified crops in return for benefit payments. The program remains alive in public memory chiefly because of a brief period in which young pigs were killed and farmers were paid a bonus over the market rate. The Supreme Court held the Triple A unconstitutional.

The Triple A was rewritten and Congress passed it again. With this bill, price supports as a permanent national policy took another step forward. This time, the Supreme Court, changed in political thought by loss of some members through death and the appointment of their successors by President Roosevelt, let the bill alone. It provided four main aids to agriculture. They were: (1) loans, marketing quotas and parity payments; (2) marketing agreements; (3) diversion of surplus production abroad; and (4) crop insurance.

The Politician Makes Hay

As a result of two farm depressions in thirteen years, price supports became the law of the land. What was good for the farmer in bad times proved good for the politician at all times. That came as a surprise to some people, including Milo Perkins, who said he didn't know the gun was loaded. Writing in the *Reader's Digest* recently he said:

"When I became Assistant to the Secretary of Agriculture in 1935, I did not believe that the Government's emergency measures, then urgently needed to help U. S. agriculture out of its worst disaster, would be turned into a permanent system of increasingly costly farm 'doles.' I did not believe that the economic policies of the long-range farm program then developing would become to many farm-area politicians of both parties a Treasury-baited hook for votes.

"But this assumption was wrong."

As sadder, wiser Milo Perkins intimates, price supports turned out to be like dope. The doctor said to use them only in case of severe pain, like corn going to fifty cents a bushel or hogs dropping to $6.00 a hundred. But the patient liked his dope in good times and bad, always wanting a little more of it. A philosopher once said that people deserve the government they get, and, if that is so, the farmer is not undeserving.

The history of price supports, from 1933 to 1946, followed the pattern of international events. In peace, the farmer

GRAVELY POWER
makes Tough Jobs Easy!

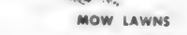
Small Tractors Pay Off on BIG FARMS too!

The powerful 5-HP GRAVELY Tractor offers 21 tools to mechanize your time-consuming small jobs!

You save time, work and money by using small equipment for those jobs ordinarily done by hand. Your big equipment is fine for the big field jobs, but how about the fence rows, lawns, small kitchen gardens? That's where you need a Gravely!

Rugged, *dependable* POWER at your finger-tips. Field-tested for 32 years. Only the Gravely does so many jobs so well!

"Power vs Drudgery" tells you how to put *Power* to work on the small jobs! Shows the new Chain Saw, Leaf Mulcher and Snow Blower attachments. Write for it today.

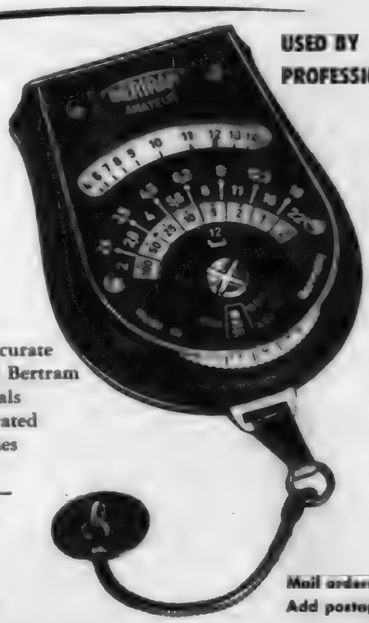


GRAVELY TRACTORS, INC.
BOX 332 DUNBAR, WEST VIRGINIA

Designed for the Amateur

Imported
BERTRAM
Photo Electric Cell
EXPOSURE METER
$14.95 with lapel chain

USED BY PROFESSIONALS



Light as a feather! Rugged as a tank! Accurate as a slide rule! — That's the sensational Bertram exposure meter! Simple settings and dials make it easy to read without complicated mathematical feats. Can be used for movies and stills. Gives direct readings for subjects requiring minutes of exposure — even at small stops and with slow films.

There has never been anything like it at the price and we guarantee it unconditionally.

Mail orders filled. Add postage.

Willoughby's
WORLD'S LARGEST CAMERA STORE
110 West 32nd Street • 113 West 31st Street • New York 1, N. Y. • LOngacre 4-1600

TWO blades cut better than ONE!

that's why

LANTZ

Reg. U. S. Pat. Off.

is your best Coulter buy

The Original Lantz Kutter-Kolter — proved for 15 years. All Lantz Coulters equipped with 4 Timken bearings, 2 Neoprene grease seals.

It stands to reason that TWO blades cut better than ONE! Every farmer knows, too, that you've got to cut trash before you can cover it. That's why Lantz, *and only Lantz*, makes 2-Bladed Coulters—to combine cutting and covering in one operation.

You'll be proud of your plowed fields when you use a Lantz. Save time, gas and money—and get *more* for your money—with Lantz 2-Bladed Coulters . . . *your best coulter buy!*

New Model B Lantz Coulter. Arrows show how disc blade crosses path of coulter blade to give a rotary scissors action, *without binding*.

"LANTZ Coulters save their own price

by avoiding wear on landside of moldboard, due to excessive sidedraft of some coulters," farmers say.

LANTZ "Swinging" SICKLE GRINDER

Different, because the grinding stone swings back and forth *against* the sickle bar—faster, sharper, more uniform grinding. Holds bars up to 7 feet long. With electric motor, for shop use —or gas engine for field use.

Send for complete information today.

LANTZ MFG. CO., INC.
Dept. CM-532, Valparaiso, Ind.
Coulter Specialists 15 Years

BLUE

Anhydrous Ammonia FERTILIZER EQUIPMENT

Works BEST—Costs LESS

NITRO SHOOTER *Universal*

This trouble-free applicator applies and seals ammonia to 10" depth. Proves its worth in rank and matted pasture, plowed under corn stalks. It shoots in nitrogen and seals surface.

NITRO SHOOTER *Junior*

3 coiled spring applicators 100 gallon tank. Both models feature the famed JOHN BLUE metering pump, the standard for long lasting accuracy. We also feature tractor type applicators and side dressing attachments for solid fertilizers and for nitrogen solutions.

Dependable Farm Equipment Since 1886

SEND FOR FREE CATALOG AND PRICES

JOHN BLUE CO., INC.
Huntsville, Ala.

was paid to produce less; in war, he was paid to produce more.

It was during the war period that the American farmer proved for all time that production is his special genius. He not only fed America and fed it well, but for every 3 bushels of wheat that stayed at home, 1 was shipped abroad. Many other foodstuffs paralleled this export record. To protect the farmer so that his new farm buildings, machinery, and supplies bought to meet war quotas would not suddenly be made useless, Congress agreed to extend all war price supports for two years after peace was made. For this reason, in the first two peace years of 1946-48, price supports were not reduced. Congress did a somewhat similar favor for the city business man in allowing him to "carry back" losses due to new business ventures in 1946-48 and recapture large taxes paid during the war years.

After 1948, with war demands gone and no foreign markets to take up the slack, new price supports were needed if only to establish a price floor should the worst happen. Nobody wanted corn to drop again from $1.85 to 67 cents.

That is why Congress passed the Agricultural Act of 1948. But political pressures were so great that before the Act went into effect it was amended in 1949. The result of these pressures are shown in this comparison:

AGRICULTURAL ACT OF 1948

Farmers receive:

60% to 90% parity supports for their crops depending on the supply.

75% minimum parity guarantee when supply is from 98% to 102% of normal. If marketing quotas are put into effect, or acreage allotments, price supports increase 20%.

60% parity is guaranteed when crops exceed 130% of normal supply.

90% parity guaranteed when supplies are under 70%.

1949 AMENDMENT TO THE ABOVE AGRICULTURAL ACT

(This is now the law and will remain until changed.)

Farmers receive:

75% to 90% parity for their crops depending on the supply.

75% of parity guaranteed when supplies exceed 130% of normal.

90% minimum parity guaranteed when supplies do not exceed 102% of normal. No parity increase in case of marketing quotas or acreage allotments.

In 1952, another amendment to this act guaranteed 90% parity support for the 1953 and 1954 crops of corn, wheat, cotton, tobacco, peanuts and rice.

The big difference between the Agricultural Act of 1948, which did not go into effect, and the amendments which did, is that the Secretary must support the six "basic" crops of wheat, corn, cotton,

MAKE THE GRADE

with the **DANUSER BLADE**

TERRACING • GRADING • LANDSCAPING • DITCHING SCRAPING • BACKFILLING • SNOW REMOVAL

Cut time, save labor, slash costs on every earth moving operation with the world's most versatile blade. One man operates hydraulic controls from tractor seat. Blade raises, lowers, tilts, angles, even turns clear around so you can push with it. Heavy duty construction. Quick, easy installation. Tested and approved by tractor manufacturers.

WRITE FOR LITERATURE pertaining to your model tractor.

Manufactured by

DANUSER MACHINE CO.

508-09 East 3rd Street • Fulton, Missouri

"Contributing to Farm Mechanization"

CORRIEDALE SHEEP

will produce

TWO CASH CROPS ANNUALLY

CORRIEDALE ewes produce more wool while producing market-topping lambs.

CORRIEDALE rams used in cross-breeding increase the wool of their lambs above that of the mothers.

For free booklets and sources of stock write:

AMERICAN CORRIEDALE ASSOCIATION, INC.
108 Parkhill Avenue Columbia, Missouri
ROLLO E. SINGLETON, *Secretary*

MAKE BUSINESS A PLEASURE!

Buy Corriedale Sheep Foundation Stock For Christmas Giving

H. H. WALKER & SONS
Gambier, Ohio

HUBBARD'S

NEW HAMPSHIRES

This high egg-production strain is balanced bred to give you a chick with vigor, high livability, fast uniform growth. Hubbard's New Hampshires are profitable producers.

We also offer Barred Cross chicks especially bred for meat production.

WRITE FOR FREE CATALOG

HUBBARD FARMS

Box 35, Walpole, N. H. • Branch Hatchery, Lancaster, Pa.

peanuts, tobacco, and rice at 90% of parity regardless of supply. This section of the law kept the government in the storage business in a big way beginning in 1949. Today the government pays $400,000 daily for warehouse rental and owns 611 million bushels of wheat and 518 million bushels of corn with the grain increasing every hour as the year's crops go in. Naturally, this worries Republican officials who oppose the law but swore to enforce it on taking office.

Republican Policy

If you walk into the office of True Morse, Under-Secretary of Agriculture, one of the first things he'll show you is a copy of an article from Harper's Magazine titled "Why Be Secretary of Agriculture?" He has personally marked this passage for your attention. Presumably, therefore, this indicates how the present administration feels:

"Farm policy will continue to produce messy and incoherent results so long as prices are supported without a companion arrangement for disposing of what is bought.

"There is a final reform in farm price policy that is long overdue—although, curiously, it is also one that has received slight attention even from careful students of farm policy. This is the provision of more flexibility in price supports in relation to the varying conditions in which they are brought into play. Flexibility has, indeed, been a magic word in farm policy for a number of years. Instead of the present system of guaranteeing the prices of the favored basics at 90 per cent of parity, there are ardent advocates — among them the leaders of the American Farm Bureau Federation — of reducing the level of support for any product, in accordance with a sliding scale, as surpluses accumulate. Legislation — the Hope-Aiken Bill — to give effect to such a plan was enacted by the 80th Congress although it has never been allowed to go into effect.

"However, this is not the kind of flexibility that is needed. Farm prices decline for different reasons, some healthy and some otherwise. What is needed is a policy sufficiently flexible to take account of these differences. The strongest case for a firm support policy is when depression threatens: it is then that the terms of trade turn against the farmer. To allow his prices to fall unchecked and in advance of other prices and incomes is not only a cruel and unusual punishment for the farmer but may well accentuate the general downward spiral.

"In the past we have always sought for a farm price policy which would serve equally in prosperity and depression. In fact we need one policy for good times and another to counter a general recession. In good times prices should have a maximum freedom of movement. To interfere with such price behavior can be damaging even to the not-very-long-run interest of the farmer himself. If, the good times notwithstanding, some crop or product is in serious trouble, relief should take some form besides price guarantees. When depression threatens, on the other hand, we should be ready to put a firm floor under farm prices."

The Republicans promised to live with the present legislation until it expires with the harvesting of 1954 crops. Under-Secretary True Morse, and the Secretary of Agriculture, both favor disaster price supports. But that is only 10% of their job in securing "equality for agriculture."

puts the heat where it's needed

The highly efficient heat exchanger on this drier gives you maximum heat for every fuel dollar. And the powerful Hartzell fan forces the heated air vigorously through your batch drier, bin or mow—insuring fast, complete drying.

The Hartzell Crop Drier is unusually compact and extremely sturdy. Indirect-fired, with completely automatic controls. Products of combustion cannot enter the air stream. Complete with oil-burner; 3, 5 and 7½ HP models.

Find out more about the Hartzell indirect-fired Crop Drier, the complete Hartzell line of agricultural drying and ventilating fans, and Hartzell's free engineering service. Write today, or see your dealer.

HARTZELL propeller fan co.
Div. of Castle Hills Corp.
DEPT. F, AGRICULTURE DIV. PIQUA, OHIO

NO PLOWING! NO SPADING! NO HOEING!

END BACKACHES PREPARING AND CULTIVATING YOUR GARDEN WITH THE AMAZING, GREATLY IMPROVED ARIENS "SUPER MODEL".

Yardster
ROTARY TILLER

Prepare level, aerated seedbed without spading; cultivate all season long close to plants, between rows without hand hoeing!

NEW! "Super model" Yardster—now with 2 h.p. engine; fingertip tiller idling clutch; non-winding, non-breakable "L" tines; improved anti-friction bearings! Tills 12" wide, up to 6". Two 10" cog-tire wheels. All-steel hood for complete side and top protection — an Ariens exclusive! 2-speed wheel drive optional. Makes gardening easy! Saves time! Saves work!

ATTACHMENTS FOR YEAR 'ROUND USE:

For snow areas—self-propelled, SNO-THRO to throw (not blow) snow up to 15' away. For mowing lawns, cutting weeds—choice of 16" or 20" rotary mowers. Plus: 5-gal. power sprayer, depth wheel, poultry litter disc, recoil starter, 110V. AC generator, paint sprayer and all-purpose carrycar.

See your dealer for full details or write:

Ariens
117 CALUMET ST.
BRILLION, WISCONSIN

"Old Rockin' Chair's Got Me"

Cardinal Junior ALL-PURPOSE FARM ELEVATOR

Doubles Your Loading Time

DOES ALL THE HEAVY WORK TWICE AS FAST . . . TWICE AS EASY

Ear Corn · Small Grain · Bulk Feed · Litter

- Lengths 12', 16', 20'.
- Made of 15-gage aluminum; 3" x 5⅝" corded rubber flights.
- Dolly fits all present and previous models. Optional.

• See Cardinal Dealer or Write for Literature.

LML ENGINEERING & MFG. CORP. • 621 S. CHAUNCEY, COLUMBIA CITY, IND.

English Type RAIL and HURDLE FENCE

Large Stocks . . .
Prompt Shipments . . .
Hand Split Chestnut Rails.
Peeled Chestnut, White Cedar or Locust Posts

FOR LONG LIFE—Entire Fence—(both posts and rails) treated with nationally known—
PENTA PRESERVATIVE

ALL TYPES—From large Estates to Small Homesites.

WRITE FOR CATALOG AND PRICES

WOOD PRODUCTS CO. TOLEDO 12, OHIO

Headaches in Farming?

LET MANAGEMENT ABSORB THEM

23 Years in Agriculture

- Long Range Planning
- Livestock and Soil Management
- Consultation on Special Problems

Eastern Corn Belt and Southern States

OPEKASIT Incorporated

LEBANON, LONDON AND HAMILTON, OHIO | GEORGETOWN, KENTUCKY | BATH INDIANA | ALBANY, GEORGIA

STOP GROWING HALF A CROP

Invest your seed money, your land and time wisely. Join the thousands of successful farmers who know that clovers, soybeans, alfalfa and other legumes inoculated with NITRAGIN produce bonus bushels and bales. Get all the yield your acres offer by taking just a few minutes to apply a few cents worth of NITRAGIN to the seed.

Cut Crop Risks—Reduce Soil Losses
Inoculate with NITRAGIN

Why risk soil-robbing and yield-cutting crop failures? Why gamble with legumes, saving pennies and losing dollars? Play safe by always inoculating. Ask your seedsman for NITRAGIN in the orange-colored can.

THE NITRAGIN CO., Inc., 3267 W. Custer Ave., Milwaukee 9, Wis.

President Eisenhower, on taking office, appointed a National Advisory Commission on Agriculture to meet with farmers and tell the nation how to keep farm prices from dropping faster than the goods farmers have to buy. The men he chose are bankers, business men, farmers, economists, and farm organization leaders. None of them have come up with a new idea. So the Secretary must either invent one himself or borrow from the ideas of the three farm organizations whose ideas have changed little with the years.

Here is a summary of what these organizations want to do about price supports:

Farmer's Union:

This group suggests that farmers be encouraged to produce as much as they can and to sell it at the market price for whatever it will bring. The government will then reimburse farmers for the difference between what they receive at the market place and 100% parity. Some opponents of this plan say the cost of the actual raw food in Jello, Shredded Wheat or similar processed foods is only a few pennies and that packaging, processing, selling, shipping and mark-up from wholesaler to jobber to retailer represent 90% of the cost. Therefore, to cut the cost of the raw food 50% may cut the city man's shopping bill only 5% on processed food while heavily increasing his taxes. Even on raw food such as oranges, the shipping, crating, sales and mark-up account for 75% of the cost of a dozen oranges. People who favor the plan say that if 100% of parity means a "fair price" why offer less?

The National Grange:

This old, national farmers' organization is mostly in favor of "self help" save for permanent disaster price supports. However, it does favor higher price supports at the present time to tide farmers over a period when prices they receive for crops fall faster than the prices they pay out for goods they buy. The Grange is not in favor of the Government buying and storing crops without provision for using them, in the event of a severe price drop. The Grange suggests that the big problem is not supply, but demand. The emphasis of the Grange is to increase demand for food. They suggest this be done three ways: (1) Increase domestic consumption by upgraded diets through education and a concerted program of food advertising, especially of perishables just before they hit the market; (2) Increase research aimed at industrial consumption of farm products; (3) The Grange wants to recapture our lost foreign market for American foods. They say the way to do this is to lower our tariff on industrial goods so that foreign countries can sell their goods to us and thus get dollars to buy American foods. The Grange favors an impartial look into a plan whereby farmers might sell their surplus wheat and cotton to foreign countries at the world price, while being assured of a higher American price for that portion of their crop used here at home.

American Farm Bureau:

The Farm Bureau believes that prosperity in agriculture requires high production per man, both in agriculture and in the rest of the economy. It believes in the encouragement of foreign trade; the control of monopoly; and a farm program which includes much more than emphasis on price supports. It believes that price supports are a reasonable and necessary protection against unreasonable price declines, but that it is not the responsibility of the government to guarantee profitable prices to any

economic group. If the government is to guarantee profitable prices, the government must decide what is to be produced and who is to produce it. This, the Farm Bureau believes, would eventually destroy the opportunity for farmers to earn and get a good income. The Farm Bureau has supported flexible price supports as a means of providing reasonable price protection to farmers with a minimum of government control. It does not believe that direct government payments to farmers are a desirable substitute for price supports or a satisfactory means of bringing income into agriculture.

Before coming into office, Secretary Benson opposed having the Government buy perishables and store them without a means of getting rid of them. At the same time, the Secretary declared himself in favor of disaster price supports and also using price supports as a tool to help the economy of the American farmers as necessary. Just how he proposes to use price supports *without* direct payments to farmers, or *without* storing perishables with no means of disposing of them, is not known.

Logic is on the side of the reasoning that he will have to do one of the two but, as a face saver, call it by another name. Permanent disaster price supports will undoubtedly receive the special recommendation of the Secretary in the new Agricultural Act he will ask of Congress for 1954. He has spoken in favor if it and so has every farm leader. He will also ask for flexible price supports, as suggested in the original Agricultural Act of 1948, which was never allowed to function before being amended. The Secretary has expressed a deep interest in devising a more efficient crop reporting method so that farmers will know the score on every crop before it comes to market and be better able to protect their interests. But neither the Secretary nor anyone else can change the basic fact that American farmers are able to produce far more than the present American public has the money to buy.

Can the Risk of Farming Be Reduced?

Where does this leave Albert Peach? What can he look forward to?

He has enlarged his farm by adding 200 acres at the price of $60,000. He used up his savings to make the down payment and must net $3,000 a year from these 200 acres to carry his debt and pay it off over the next twenty years. Price supports are not going to pay Mr. Peach's bill; but they will help a little to keep him in business. Good times, or bad, Mr. Peach is a know-how farmer, an ambitious, hard working, intelligent man whose wife is with him all the way. The government will make his job a few per cent easier, *and that few per cent can make all the difference,* in telling him corn won't fall again from $2.17 to 67 cents, while his implement dealer keeps his price tag unchanged for machinery, fertilizer, building materials and fencing.

Preventing such price drops will be

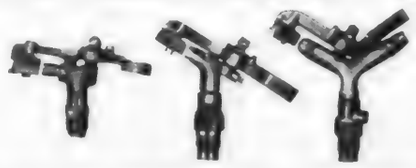
SKINNER

the most complete line of sprinklers for lightweight portable pipe

SKINNER offers the most complete line of sprinklers on the market today, ranging in size from 1 G.P.M. at 5 lbs. pressure to 410 G.P.M. and 100 lbs. pressure.

Each SKINNER sprinkler incorporates all of these outstanding features: adjustment for controlling rotation, working parts easily accessible, no tool required when making adjustments, bronze, brass and stainless steel parts throughout.

Write today for complete information. SKINNER Irrigation Co., 200 Canal St., Troy, Ohio



"Pioneer and leader in irrigation for over a half century"

COMPARE *Irrigation* PUMPS!

WEIGH THESE POINTS BEFORE YOU BUY- - - -

COMPARE — Gorman-Rupp pumps with all other makes and their performance under field conditions . . .

EXCLUSIVE! — Gorman-Rupp Firsts! . . .

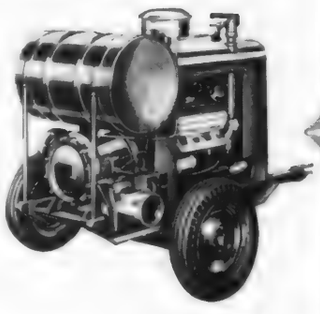
★ CHECK VALVE (lever control) — Standard equipment on pump discharge. No gate valve needed. Valve threaded to receive 6" pipe.

★ WEAR RING — Renewable, surrounds impeller eye.

★ SHAFT SEAL — Located on suction side under vacuum. Lubricated by compression grease cup.

★ END PLATE — Removable, gives easy accessibility to impeller and shaft seal without disturbing pipe connections.

And! with Gorman-Rupp you get a complete irrigation pump package: pump, engine, exhaust priming device, strainer – ready to work.



Available in many sizes. Air-cooled engines and water-cooled engines.. G P M varies with lbs. pressure. Ratings from 80 GPM at 75 lbs. to 1250 GPM at 125 lbs., or 3000 GPM at 35-foot head.

GORMAN-RUPP IRRIGATION PUMPS

GORMAN-RUPP ORIGINATES — OTHERS IMITATE

THE GORMAN-RUPP COMPANY - - - MANSFIELD, OHIO

jari POWER SCYTHE

SHEAR MAGIC

for clearing brush...weeds ...tall grass

Self-propelled Jari, Sr. Power Scythe cuts faster and easier—and with safety. Its efficient 36" sickle bar shears through dense growth without stalling, does the work of six men with hand scythes. Light in weight, the Jari, Sr. operates over rough terrain, steep slopes and soft ground. Heavy-duty construction, with easy-starting 2-hp engine, ball bearing drive shaft, screw-adjusted knife clips and finger-tip clutch control. Spray attachment available.

Write for details and prices to:

jari PRODUCTS, Inc.
Dept. 2934T, Minneapolis 8, Minnesota

SAVE $11 to $16 a ton on feed with...

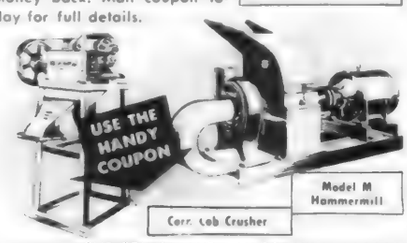
MIX YOUR OWN FEEDS

KELLY DUPLEX FEED MIXERS

Mix your own cattle, hog, poultry feeds. Get a perfect blend in 10 minutes, save 55c to 80c per 100 lbs. Rugged—easy to operate—absolutely noiseless.

It's just as easy and profitable to make your own poultry litter with a Kelly Duplex Cob Crusher—or to grind grain with a Kelly Duplex Hammermill. Satisfaction guaranteed or your money back. Mail coupon today for full details.

Vertical Mixers — all sizes—small as ½ ton



CLIP COUPON AND MAIL TODAY!

The DUPLEX MILL & MFG. CO., Box 8, Springfield, Ohio

Send me full details on items checked.

☐ Feed Mixers____ton cap. ☐ Cob Crusher ☐ Hammermill

NAME _____

ADDRESS _____

done by disaster price support. These will be backed up by flexible price supports to be used at the discretion of the Secretary when any crop gets out of hand through over abundance. Farming is never easy, but a small fraction of the risk has been taken away. And that is good for Albert Peach.

THESE TEN FARM LEADERS - - -

(*Continued from page 46*)

the level of price supports, the greater the controls and regimentation that will result. With flexible price supports, we would hope to hold controls to a minimum.

Government payments to farmers are not a desirable substitute for price supports or a satisfactory means of bringing income into agriculture.

Herschel D. Newsom, Master
National Grange
Washington, D. C.
860,000 members

Yes. For the time being, we should keep some form of reasonable direct price supports. Farmers cannot suddenly return to a free market. Meanwhile, two plans will reduce the need of price supports. First, freer world trade will increase our customers for food; second, powerfully timed advertising will increase the consumption of perishables just as they hit the market. In both plans, at this time, we will need government support.

James G. Patton, President
National Farmers Union
Washington, D. C.
225,000 members

Yes. Although some farms produce many times more than others, the family farm is the bulwark of democracy. Preservation of the family farm pattern helps to prevent the dangerous extreme of great wealth and poverty. The land belongs to all the people and should be used and tended for the greatest good of the greatest number both of those living and of those yet unborn. We favor a 100 per cent of parity price support so that farmers will have a definite legal assurance of what to expect, without having to depend upon the level at which some unknown future Secretary of Agriculture might stop the tobogganing of farm prices.

California Cattlemen's Association
San Francisco, Calif.
J. Edgar Deck, Sec.

Yes. By a poll of our 2,650 members on price supports for cattle, 76.9% of the 1,253 who replied were against price supports for cattle. Seventy-eight per cent were in favor of a heavier beef purchase program, by the government, during periods of drought and when cattlemen are selling heavily of the lower grades. Our Association supports the policy that Congress amend the present law and place support corn and other supported livestock feed on a flexible basis, to be determined by the Secretary of Agriculture.

Murray D. Lincoln, President
Farm Bureau Mutual Life Insurance
Columbus, Ohio

Yes. Price supports must be retained to put a floor under farm prices during depressions. But such price supports should be available on all commodities, not just certain staples, as at present.

The long-term solution for farmers is not the rigid framework of price supports and marketing quotas. A better program would be to dissolve monopoly power or restrictions, wherever they occur, and which work against agriculture and against consumers generally.

LIME • FERTILIZER • SEED
BROADCASTER

SOLD DIRECT FACTORY TO YOU!

SIZES 3-14 FT.

FREIGHT PREPAID

Sturdy, low cost Broadcaster saves real money. Modern assembly and Direct Factory-To-You-Plan. Saves over $100. per machine. Famous quality, long lasting construction. Has special hitch. No clog agitator. Instant shut-off. Precision flow control for accurate spreading or seeding. Exact spreading 50 to 8000 lbs. per acre. Sizes 3 to 14 ft. Special sizes for small riding tractors and garden tractors. Over 14,000 now working in 48 states. Absolute Iron-Clad Guarantee. Act now.

AS LOW AS $66

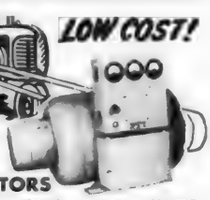
Send for FREE Booklet

MOORE MANUFACTURING CO.
SWEDESBORO 46E, N. J.

There's No CORN Like PIONEER

END POWER FAILURE WORRIES

LOW COST!



KATOlight EMERGENCY GENERATORS

Protect your farm against Power Blackouts with a KATOLIGHT Standby A. C. Generator or Electric Plant 110/220 Volts alternating current same as highlines. Tractor or engine drive generators. Complete units for standby, portable or continuous use. Generators to 300 KW.

FREE FOLDER

KATOLIGHT CORPORATION
Box 491-4 Mankato, Minnesota

WORLD'S OLDEST STRAIN

MONEY MAKERS for 63 YEARS!

You buy chicks from Parks' proven flocks without risk. Your Grandad, county agent, and leading poultry journals recommend them. Be sure you get our new catalog about

PARKS BARRED ROCKS

Tells how we produce these big rugged mountain grown birds. Also get the facts about two NEW and exclusive crosses out of our Barred Rock Hens. Remember our 63 years of specialized breeding can help YOU to make more money from eggs and meat. Write today!

JOE PARKS & SONS
ALTOONA, PA.

(*Continued from page* 45)

the rye heads. You've got to time it right though: if you chop off the rye before the head is well formed, the plant will grow another one: and if you wait until after blooming, the rye head will go on developing on the ground and you'll have your field well seeded next year. If a field is too heavily infested with rye, we hold off planting until the spring and then go through with a weeder and then plant spring wheat."

The wheat which Paxman and the other farmers on the ridge plant is either Cache or Wasatch, two new varieties developed by the Utah State Agricultural College when the high yielding Kanred was laid low by dwarf smut. Other breeds of smut had been controlled by seed treatment, but not dwarf or low smut, which stunts the plant and fills the grain head with smut balls instead of wheat. As one farmer said, "No amount of doctoring the seed helps, because the smut is on the seed and in the soil, too, and hits the plant after it has started to grow. When smut hit us, the College put out a wheat called Relief, which was a low yielder and shattered a lot, but it kept us going until we got Wasatch and Cache."

The yield can be improved with nitrogen fertilizers—no potash or phosphorus deficiencies have been found in these arid soils which are also extremely high in lime but here again the farmer runs into a gamble with moisture. If he fertilizes and gets a good stand, the heavy growth may use up all the available moisture before it produces grain. An application of 200 pounds of sodium nitrate to the acre, which gives 32 pounds of nitrogen, has increased yields 8 to 10 bushels and also increased the protein content of the wheat. A test most of the farmers make for protein is to chew a mouthful of the hard, flinty wheat: if it wads up into a long-lasting gum, they figure the protein content is reasonably high, around 12 to 13 per cent: if it breaks down into a starchy mass, it is low in protein. Their rough test stands up pretty well at the mill where more scientific assessments are made.

"Protein content and yield vary in direct ratio with rainfall." Frank Morgan, another dry-farmer with 1000 dry-land acres and 100 irrigated acres, will tell you, and he will be glad to illustrate his finding by drawing a graph in the dust on a piece of equipment. "Yield and protein content lag a year behind moisture, which probably means that during the wet years the soil bacteria have a chance to break down the trash in the soil and turn it into humus."

Morgan, who is Chairman of the Juab County Soil Conservation District, is considered to be one of the most scientific farmers in the area. He is an avid reader of all new material from the experiment station, subscribes to a long-range weather

7 great new farm hoists . . . for every size truck

60" C/A — D 16 F — 6½ to 7½-ton cap.
72" to 84" C/A — MA 16 F — 7-ton cap.
84" C/A — M 16 F — 8 to 10-ton cap.
84" to 102" C/A — M 18 F — 9 to 12-ton cap.
102" to 120" C/A — H 20 F — 9 to 10-ton cap.
120" C/A, 84" to 120" C/T — L 20 F — 11 to 14-ton cap.
*Also H 16 FW wrap-around hoist (84" C/A; 8 to 10-ton cap.).

Handles "101" farm jobs quicker, easier, cheaper!

One man can unload 6½ to 14 tons of corn, grain, and other farm products IN SECONDS, with the new St.Paul Dump-it hoist. As a result, you save up to 60% in *harvesting costs* . . . get your crops to market or storage faster, with less back-breaking labor. But remember, there's a *big difference* in farm hoists, so be sure you get the new St.Paul Dump-it, with over *50* advanced *engineering improvements* no other hoist can match! Newly-designed Dump-its are stress-proved and work-rated for *lowest net cost per payload hour*. Ask your truck dealer, or St.Paul Distributor . . . or write for FREE Dump-it literature, just off the press! St.Paul Hydraulic Hoist, Customer Service Dept., 36134 Main St., Wayne, Mich. S-DF-7

OUR 41st YEAR

St. Paul HYDRAULIC Dump-it Hoists

oldest in reputation . . . *newest* in cost-saving features

FREE

Get this recent U. S. Department of Agriculture 8-page leaflet! Tells how to convert waste wood—poles, slab wood, trimmings or brush—into valuable chips for soil improvement, stable bedding, poultry litter, or orchard and garden mulch.

SEND COUPON TODAY FOR VALUABLE LEAFLET!

LOOKING FOR A WAY

...to reduce woodland fire hazards?
...to dispose of brush easily without hauling or burning?
...to aerate and enrich your soil?

WOULD YOU LIKE TO HAVE

...low-cost stable bedding?
...poultry litter?
...orchard or garden mulch?

You can have all of these if you own a Fitchburg Brush Chipper. Reasonably priced...built to really last with minimum maintenance cost.

Check on the coupon which of the uses of Wood Chips interest you most...and where you want us to send your copy of the free leaflet, "Wood Chips for the Land." No obligation. Get this valuable information! Mail coupon today.

FITCHBURG ENGINEERING CORPORATION
Dept. 2, Fitchburg, Mass.
Please send me a copy of "Wood Chips for the Land." I am interested in Wood Chips for:

PLEASE CHECK
☐ Soil enrichment ☐ Garden or berry mulch
☐ Stable bedding ☐ Fruit tree mulch
☐ Poultry litter ☐ Farm roads, field lanes

Name_____
Address_____
Town_____ State_____

NOW IN BOTH

Multiple Strength and Regular Grades

INTERNATIONAL ® FERTILIZERS

MORE PLANT FOOD VALUE

a bigger profit-maker than ever before

Big yields per acre, at the lowest possible unit cost of production, is the only sure way to get satisfactory profits in today's market for your crops.

You'll want to pour on the fertilizer, to use it generously to get the big yields you've got to have. It's the *extra* fertilizer, above average application, that gives you the extra yields . . . the extra profits.

And now, with *International's* multiple strength grades, fertilizer, more than ever, is one of the most profitable investments you can make.

- **More plant food in the bag and at a lower cost per unit**
- **Fewer bags to handle . . . lower transportation and storage costs . . . faster, easier application in the field**
- **Bigger yields . . . lower unit production cost . . . greater returns on your investment**

So see your *International Fertilizer Dealer* now. He can arrange for prompt deliveries of locally recommended grades in the quantities you need. Write for name of nearest dealer.

dealership

A few excellent dealerships are still available. Please write today, mentioning *Farm Quarterly*, for detailed information.

International Minerals & Chemical

plant food division

INTERNATIONAL MINERALS & CHEMICAL CORPORATION

General Offices:

20 North Wacker Drive, Chicago 6

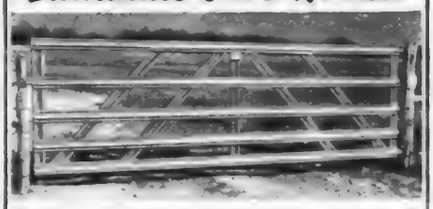
forecasting service and uses it in his farming, and has taken an active part in promoting rain-making tests. "The best we have been able to do around here to prevent wind and water erosion," he said, "is to plow and plant on the contour—the soil conservation district sends out engineers to put in permanent contour markers for the farmers—and to maintain rough, trashy mulch during the fallow year. It would be better if we could turn to stip cropping, but none of the farmers has enough land to make it worth while. It takes around a thousand acres of dry-farm land to support the tractors, plows, weeders, seeders, and self-propelled combines that we use around here, but most of the farms are broken up into plots scattered over the ridge.

"The big erosion problem comes when high wheat prices tempt fly-by-night farmers into breaking steep land and poor land—land that should be left to growing junipers if the deer will let the junipers grow—and planting it to wheat. When they go broke, as they always do when the price drops, they don't have enough money to sow a cover crop, like crested wheatgrass, and so they leave the land to wash away and to grow weeds. They go broke and we have abandoned land that's doing us positive harm. As a matter of fact, we've got a real problem with good land that we won't be able to plant to wheat for next year.

"The acreage allotment on wheat will cut us around twenty-two per cent. Our problem here is that we don't have many other crops which will grow on this land. We could put it to rye; that's what they did back in the forty's when they had an acreage allotment, but that is what started our biggest headache—one that's costing us at least one hundred and twenty-five thousand a year. A few of the boys are going to sow their extra acres to crested wheatgrass, but then they have the problem of fencing if they pasture it. Out on the ridge, we haven't had livestock for years and there's not more than two or three fences standing. We plow and seed right up to the boundary line or right to the edge of the road. The men who are going to plant crested wheatgrass will probably set up electric fences powered by batteries. Most of them will have to haul water, though one or two farms have deep wells which will produce enough water for stock. If we had a little more water, we could plant pinto beans which have been a really profitable crop in some of the other dry-farm areas. Our big hope is that some day the experiment station will come up with a good crop we can rotate with wheat."

The Nephi experiment station is conceded to be the oldest dry-farm experiment station in the world. It was started in 1903 by Dr. John A. Widtsoe, who came to America from the rain-swept Norwegian island of Froyen to become one of the first scientists to carry on experimental

Eliminate GATE Worries



It's time to replace those tired, worn-out, heavy gates and start livin' a life of easy passin'. These aluminum or steel patented gates assure "Life-Time", tough use and maintenance-free service. They cost less to own. Dollar for dollar the value can't be matched.

Strong, Light and Beautiful. Sizes 4 to 16 foot ready to hang. Also made in galvanized Springsteel for low cost. Ask for "Life-Time" gates at your lumber dealer or Farm Supply. Shipped from 12 Factories in United States.

ALPRODCO, INC., BOX F, Mineral Wells, Texas

WHICH TRACTOR Lasts the Longest?

Make for make, model for model, it's the tractor equipped with a HOBBS ENGINE HOUR METER! That's because this owner knows WHEN to service his tractor. Protective maintenance assures longer tractor life, prevents needless repairs.

HOBBS *Engine Hour* METERS

Approved by Leading Manufacturers

Recommended as an approved accessory by leading tractor manufacturers. Full information is available from your tractor dealer.

QUICK DELIVERY Newly enlarged production facilities now permit prompt shipments. Order from your dealer NOW.

ORIGINATED AND MANUFACTURED EXCLUSIVELY BY

John W. Hobbs Corporation

2066 YALE BLVD. SPRINGFIELD, ILLINOIS

20 Million Trees a year

Evergreen seedlings and transplants at low quantity prices. A few suggestions:

SCOTCH PINE — Riga Strain

2-yr. seedlings 2-4" ..... $15 per 1000
3-yr. seedlings 5-10" ..... 35 per 1000

SPECIAL STRAIN SCOTCH PINE

Grown from seed collected by our men from selected parent trees. Excellent health, sturdy, straight-stemmed specimens with rich green color.
2-yr. seedlings 4-7" ..... $35 per 1000
Excellent recommended size for field transplanting.
3-yr. seedlings 8-12" ..... $55 per 1000

AUSTRIAN PINE

Beautiful compact Ornamental and Christmas Tree.
2-yr. seedlings 3-5" ..... $30 per 1000
3-yr. seedlings 8-12" ..... 45 per 1000

WHITE PINE

One of the best timber species; also Christmas Tree.
2-yr. seedlings 2-4" ..... $20 per 1000
3-yr. seedlings 6-10" ..... 35 per 1000
Best size for field planting.

MUSSER EXCLUSIVE NORWAY SPRUCE

Seed from selected trees. Fast growing, straight stem.
2-yr. seedlings 5-10" ..... $35 per 1000
3-yr. seedlings 10-16" ..... 55 per 1000

CANADIAN HEMLOCK

Lacy, graceful. Sun or shade. Shear for hedges, specimens.
2-yr. seedlings 3-6" ..... $45 per 1000
3-yr. seedlings 8-14" ..... 75 per 1000

DOUGLAS FIR — Rocky Mountain Type

3-yr. seedlings 10-14" .. $40 per 1000

Also shade and Hardwood seedlings, 6 to 10 ft. Fruit and shade trees. For Spring planting list and famous CHRISTMAS TREE GROWER'S GUIDE, write to Box 6-L.

MUSSER FORESTS, INC.

INDIANA, PA.

Cross-section of udder photographed shortly after ointment bases (with dyes added) were instilled.

For mastitis control—here's

PROOF YOU CAN SEE!

New exclusive ointment base carries medication right to the infection!

TRIBIOTIC® OINTMENT

penicillin • dihydrostreptomycin • bacitracin

- The photograph above shows how rapidly and completely TRIBIOTIC's new ointment base gets the medication into the udder tissues. An ordinary ointment base — instilled at the same time—appears in the lefthand section. Both bases were dyed before instillation for illustrative purposes. Note the great difference in spreading action.

- TRIBIOTIC contains 3 powerful antibiotics in effective proportions which kill more mastitis-causing organisms than does any single antibiotic. Remember, no *single* antibiotic has the power to control all types of germs causing mastitis.

TRIBIOTIC is easy to use. Handy single-dose, one-pinch tube is easy to insert—no threads to cause injury. Refrigeration not needed.

TRIBIOTIC is harmless to animals. Fast action gets cows back into production rapidly. Economical treatment because fewer tubes are needed.

SUPPLIED:
Single-dose tubes, each containing 100,000 units penicillin with the equivalent of 50 mg. dihydrostreptomycin base and 5000 units bacitracin.
NOW ONLY 89¢ per tube

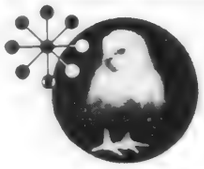
AVAILABLE FROM YOUR DRUG STORE OR OTHER ANIMAL HEALTH PRODUCTS SUPPLIER

Wyeth
Philadelphia 2, Pa.

Tribiotic is available in Canada as Triovet*

*Trademark of related company

M.I.



Mother Influence--
the Nichols factor that
makes good broiler
crosses great.

NICHOLS
POULTRY FARM, INC.
Box 31 Kingston, N. H.

EXAMINE FREE!

THE COW OWNER'S HANDBOOK

Complete How-to-do-it Guidance on the Care and Feeding of Cows

If you want to save money . . . if you want cows that are healthier and produce more . . . if you want to know what to do in emergencies and sickness . . . send now for your 10-day *free examination* copy of this *complete* handbook on how to care for cows.

Written by Dr. E. T. Baker, a practicing veterinarian for the past 35 years, "The Cow Owner's Handbook" is a book you will turn to again and again as a constant source of authoritative advice that may save you hundreds of dollars.

PARTIAL CONTENTS

What to do when a cow loses her cud. What to do about caked udder, caked bag, mastitis, mammitis. How to stop hemorrhages. The right way to drench a cow. How to tap a desperately bloated cow in the right place. How to keep milk production at a high peak. How to handle fresh cow problems. How to keep communicable diseases from spreading to other animals or humans. How to care for the cow during calving. What to use when you're out of standard medicine for your cow. How should your cow diet if she produces bloody milk. The causes of bitter milk and how to prevent it. How to hasten a cow's recovery from milk fever. How to detect and what to do for digestive troubles. Feeding silage, hay, roughage, appetizers, salt and water, minerals and vitamins. Poisons affecting cattle and their antidotes. How and when to dehorn a calf. How to control diarrhea in a young calf. What to do when a calf has rickets. Etc., etc., etc.

SEND NO MONEY! Fill in and mail the coupon below to get your free-examination copy of "The Cow Owner's Handbook." Use it for 10 days without cost or obligation.

MAIL COUPON TODAY

Prentice Hall, Inc., Dept. M-FQ-1253
70 Fifth Avenue, New York 11, N. Y.

Send me a copy of "The Cow Owner's Handbook" for 10-day free examination. Within 10 days I will either remit $5.95 (plus a few cents postage) or return the book and owe nothing.

Name .....

Address .....

.....

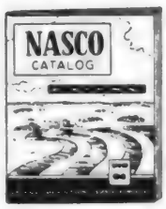
work in dry-farming and later to become an Apostle in the Mormon Church. Urged by James Belliston to locate the farm on the south slope of the ridge where they *knew* they could grow wheat. Dr. Widtsoe said, "No, we wouldn't be learning anything if we farmed there. Let's put it on the north slope where we don't know whether farming can be carried out."

The experiment station has tested dry-land crops such as pinto beans, safflower, crested wheatgrass, tall wheat grass which can be crossed with wheat, a trick the Russians did in developing perennial wheat), sweet clover, barley, and alfalfa (which can be grown in rows and pushes down roots over 20 feet deep). They have also carried out experiments on cultural practices such as stubble burning as opposed to plowing the stubble back into the earth. In a 34-year test they found that the burned land produced more wheat than the stubble land, but it also eroded more. And now they find that as the humus is being exhausted from the burned soil these plots are slipping behind on yield. They have also done extensive research on the cultivating practices best suited for conserving moisture and preserving the land against erosion. Field days at the Station are packed with farmers from all over the dry-farming area.

"With what the Station has learned and published," Morgan said, "a man could go out with nothing but his bare hands and the land and run a dry-farm. A while back the Governor started hinting that he might close down the Station as an economy move. Well, he won't, because we won't let him. The farmers of this county own the land and we met at Tremonton and agreed that we'd all chip in and keep the Station going before we'd let it be closed. And I think Mr. Pittman, the superintendent, and the other scientists would chip in their brains, too, if it came to that."

Chipping in for experimentation is no new thing with Morgan. Three years ago during one of the worst droughts they have had recently, he got Irving Krick, a rain-maker, to come over from Denver to discuss the new rain-making techniques. While they were discussing the project, Krick saw storm clouds forming and sent up his planes to seed the clouds. He produced a three-quarter inch rain. "He's either the best salesman, the luckiest man on earth, or else he's right." Paxman said. "After the rain we passed the hat and collected eighty thousand dollars and we've been taxing ourselves for rain-making since. We've still a lot to learn though. A couple of years ago I heard of a big Colorado wheat man who called in the rain-makers and they saved his twenty-five thousand acres of wheat. The next year he said, 'To hell with summer fallow' and planted his whole dry-farm to wheat. That year, the rain-makers could not deliver a drop. They just have to

Why You Will Want To Have And Use This NEW, FREE NASCO CATALOG



As a leading farmer, or operator, in your community, you have a need for more of the modern, specialized tools and equipment to make farming pay off better. We serve modern farming . . . and in this big new 240-page catalog we have gathered almost all of the things you will be needing. Full of hard-to-find items, this useful catalog contains the world's most complete line of specialized farming supplies. You will not want to be without it. **Order your copy right away.**

NASCO, Fort Atkinson 201, Wisconsin

TOP Production—Both Milk and BEEF from RED POLLS

In the Red Poll the same cattle produce meat and milk. Red Polls produce milk economically under general farm conditions at the same time producing carcasses and cuts that please both packers and consumers. That two-way ability is **dual purpose.** It means that a general farmer using Red Polls is in a position to vary his management to meet the ever changing conditions of labor, feed supply and markets.

Free Literature and Breeder's Directory. Send today for Red Poll News—$1.00 per year!

RED POLL CATTLE CLUB OF AMERICA
3275-FQ Holdrege Street Lincoln, Nebraska

VETERINARY PRODUCTS DIRECT to YOU

All the latest effective treatments employed by leading veterinarians and herdsmen. *Discounts available on quantity shipments.*

Write for our Dairy Bulletin and Veterinary Catalog.

ANCHOR SERUM CO.
of INDIANA, INC.
INDIANAPOLIS 6, INDIANA

For More Bountiful Harvests
PLANT
Bountiful Ridge
FRUIT TREES • BERRY PLANTS

Complete line of Fruit, Nut and Shade Trees. Dwarf Fruit Trees. Strawberry, Raspberry and Blueberry plants, Asparagus, Grapes, Evergreens, and ornamentals. Some of the old favorites plus many new exclusive (patened) varieties. Over 80 years growing experience thru three generations of Kemp family assures highest quality nursery stock at reasonable prices. Satisfaction guaranteed

FREE 60 PAGE CATALOG — WRITE
Bountiful Ridge Nurseries
BOX Q-14, PRINCESS ANNE, MD.

have clouds to make it rain and there weren't any. We haven't given up summer fallow around here. The only place we plant crop after crop is on our irrigated lands and on them we can raise eighty to a hundred bushels of wheat or a hundred and twenty-five bushels of barley, which gives you an idea what this deep rich soil of the dry country can do when it has water."

Morgan and the other farmers on the Levan Ridge where rainfall is about as low as it can be and still support this kind of farming might be forgiven if they were envious of the farmers in northern Utah, Idaho, Montana, Colorado, western Kansas, New Mexico, eastern California, Oregon and Washington, where the dry farmers have heavier rainfall and can rotate their wheat with peas, beans, alfalfa, and even row crops such as corn and potatoes—where summer fallow is used once in three or four years before the wheat crop. But they don't envy them. They point out that land prices are higher as the rainfall is higher and that farming is much riskier in these lands which blend into the humid farming area. These farmers have more crop failures in spite of the higher rainfall and they are probably tempted to forget the expensive water conserving practices or to skip the fallow year in hopes that the rainmaker can wheedle a good downpour out of the clouds during the growing season.

"No, we're not going to throw all our old practices out for a new idea like rainmaking," Morgan concluded, "but we are going to go on testing new ideas and new methods. We will hunt for new crops which can be grown on the dry-farm and we'll hunt for new methods of bringing moisture to the soil or holding more moisture in the soil. And if someone comes up with a revolutionary new idea, we won't throw him in jail like they did David Broadhead."

CHECK THEIR WEIGHTS

(*Continued from page* 67)

able platform scale on which he weighs sacks of feed, milk, bushel quantities, and himself. "I keep this scale busy weighing and mixing small batches of feed. And sometimes my two boys weigh their 4-H calves on this scale!"

Allred's third scale is a pit-type livestock scale with a 9′ x 18′ platform. "We darn near work this scale to death. Every bit of feed that comes onto the place is weighed on this scale. When we first started weighing the feed we bought, we found some short weights. Since then we have gotten a fair deal—sometimes even a little over. I don't want to mention the name of the fellow who sold us our feed. Coal dealers sometimes come

YOUR MONEY BACK — IF YOU ARE NOT SATISFIED WITH RESULTS

Simplex SOIL TESTING

THE FARM SIMPLEX SOIL TEST OUTFIT

Designed for the smaller grower, it contains 100 tests for each of 5 important soil elements, plus tissue tests for Nitrates, Phosphorus and Potassium 25.50

F.O.B. Norwalk, Ohio
Shipped via Railway Express.

OTHER COMMERCIAL SIMPLEX SOIL TEST OUTFITS

The Complete Simplex Soil Test Outfit 49.50

The Junior Simplex Soil Test Outfit 33.50

Solution replacements available for all commercial Simplex Soil Test Outfits.

F.O.B. Norwalk, Ohio
Shipped via Railway Express.

THIS IS OUR GUARANTEE

If you are not satisfied with the results obtained, return your Simplex Soil Test Outfit within six months of date of purchase and your money will be refunded.

THE ACCURATE WAY OF DETERMINING FERTILITY OF THE SOIL

Since all crops require food for adequate growth and production, the Simplex method of soil testing enables the farmer to obtain maximum crop yields at a minimum cost through the use of a fertilizing program based on the actual soil needs.

Write for descriptive literature.

THE EDWARDS LABORATORY

P. O. BOX 318-D NORWALK, OHIO

amazing, new Century

PTO DRIVE SPREADER

CENTURY outdates all other spreaders

- PTO for greater accuracy. No slipping on wet, rough or frosty ground. A steady flow of fertilizer at the exact rate per acre you want.
- PTO for faster spreading. Cuts spreading time up to 50%. Spreads up to 15 miles per hour.
- PTO for easy cleaning. Cleans itself in 10 minutes. Just engage the PTO and let the agitator operate while the machine stands still.

Money-Back Guarantee. The Century spreader is guaranteed in writing to spread any fertilizer in any condition, sow seed as small as clover to as big as soybean. The hardened steel alloy agitator is guaranteed against breakage or excessive wear for two years from date of delivery to customer.

Get the whole amazing story. Find out about Century's exclusive chain-saw action three-speed agitator, tractor seat rate-of-flow control, adjustable row-spacing, and other remarkable new features. Mail coupon for big illustrated brochure.

Century Engineering Corp., Cedar Rapids, Iowa
Gentlemen: Please tell me more about your revolutionary new spreader.

Name_____

Address _____

City_____ State _____

High Yields and Higher Quality Potatoes With Hoover's Organic Blend

"I've been raising potatoes for years," says Roland Maheu, Wheatfield, Ind., "but noticed that the quality kept getting worse. So I applied Hoover's Organic Blend in comparison with chemical 0-9-27. Results showed heavier growth and earlier blossoms on those in the Hoover's Blend patch. Best of all, laboratory tests showed that, in addition to high yields, these potatoes were higher in quality . . . carrying 1.7% less moisture, 0.02% more protein, 0.01% more fat, 0.50% more fibre, 2.14% more N. F. E., 2.64% more carbohydrates, 0.03% more ash, 0.016% less calcium, 0.018% more phosphorus, and 10/100 grams more calories. Evidence enough that Hoover's Organic Blend assures real disease-resistant, top grade potatoes."
Write today for FREE descriptive folder on Hoover's Organic Blend and other Hoover soil conditioners. No obligation. Dealer inquries also invited.

HOOVER SOIL SERVICE
Gilman, Illinois

FEATURES:

- Balanced "in-line" center construction — well engineered and sturdily built for lasting service.
- High capacity—can be adapted to and will handle output of any one or two row picker.
- Shells clean—with little or no cracking because of smooth round bars in sheller cage.
- 106 bushel grain tank keeps you picking longer with fewer stops for unloading.

SHELL AND DRY THE AMERICAN WAY

Write for complete information

AMERICAN CROP DRYING EQUIPMENT COMPANY
CRYSTAL LAKE, ILLINOIS

around wanting to sell me twenty tons of coal in a truck that couldn't possibly haul more than fifteen tons. They really backpedal when I offer to buy the coal and weigh them in right here," said Allred.

Allred found he could save himself trouble with the law if he would weigh his truck before going onto the highways. He weighs each set of wheels as a check against possible overloading. "The penalty can be pretty stiff," he says.

"I bought this scale for $735.00 just after the OPA let the scale companies raise their prices 15 percent," he says. "They said it would weigh 18½ tons, but I never put a full load on it."

Mechanically-minded Allred built his own scale pit. "I built nearly everything on this farm," he said, glancing toward the tool shed next to which he built his scale. He dug his pit four feet deep, allowing for a five-inch concrete floor. In the width and length of the pit, he provided for a one-inch clearance around the sides of the platform. He also poured five-inch concrete walls resting on footings extending sixteen inches beyond the outside of the wall. The footings were reinforced.

"My land has a gravel base, so I sloped the floor so it would drain on one end." He ran into problems when he poured and leveled the four cement piers on which the scale rests. He had difficulty getting the piers exactly level and had trouble when he bolted the scale to the piers and tried to set the entire scale "plumb and level."

"So far, the scales haven't needed any maintenance at all, and I doubt if they will for a long time to come," he said, breathing a sigh of satisfaction. "The levers are balanced on a knife-edge fulcrum made of hardened steel, and I coated them all with rust resisting grease when they were put in."

Frank I. Geries, weighing technician for the California Department of Agriculture insists that a large livestock scale should be carefully tested and serviced at least once a year—and more if you use them extensively. "Scales are like a car," he says. "If you drive a car twenty thousand miles a year, you will need to give it more service than if you only drive it ten thousand miles. But even if you only drive it one mile, you will want to have it checked. The same holds true with a scale," says Geries.

And Geries would be pretty careful about inspecting the drain on Allred's pit-type scale. "A pit should be well drained and free from rats, toads, and birds. A pit that drains into gravel provides a nesting area for rats and toads. Why, just last week I tested a scale that was off 800 pounds on a 20,000 pound test load. The error was caused by a wasp's nest."

Unless a scale is located on a hill or a high plane where it can drain, Geries suggests that you install a sump pump to keep the pit dry. In fact, Geries pointed out that the trend is away from

Protect Chairs, Beds, Rugs, etc.

Just shake **Powder Chaperone** on anything you want your dog to keep off! Works like magic! No more embarrassing dog hairs when company comes.

You can't smell it—dogs do and stay away. Harmless to you, your pets, even finest fabrics. Does not show. Correct your dog's bad habits this easy way. Keeps male dogs away from females in season. Stops puppy damage. **Handy shaker package, only $1.**

SEND NO MONEY— Order **Powder Chaperone** C.O.D. plus postage (or send $1 bill at our risk and we'll pay postage). **Money-Back Guarantee**

Liquid Chaperone, keeps dogs, cats out of evergreens, shrubs, gardens, garbage can, etc. Harmless, (spray on). **$1.**

Kitty Chaperone, especially for cats. Keeps off chairs. Stops clawing furniture, drapes. **$1.**

SUDBURY LABORATORY, Box 186, South Sudbury, Mass.

POWDER *Chaperone*

Stores: Write for Special Offer

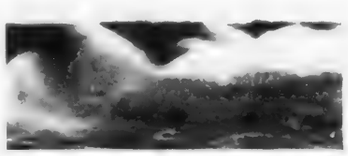
COUGHS DUE TO COLDS

among horses, mules, cattle, sheep and dogs call for treatment with SPOHN'S COMPOUND. A stimulating expectorant. Acts on throat and bronchial tubes to hasten relief. Used by world-famous horsemen for 55 years. At drug stores, or direct, postage paid, 75c and $1.50.

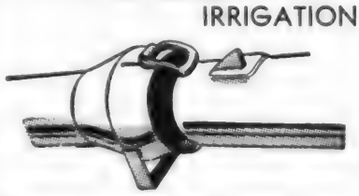
SPOHN MEDICAL CO., BOX 14, GOSHEN, IND.

SPOHN'S COMPOUND
FOR COUGHS DUE TO COLDS

IRRIGATE
. . . for Better CROPS!



MOULTON
. . . . for Better—
IRRIGATION



Portable Irrigation System

Manufactured from lightweight aluminum to provide maximum portability and flexibility. The Moulton QUICK COUPLER provides "Single operation" coupling and uncoupling. Before installing your irrigation system investigate the MOULTON PORTABLE SYSTEM — available in any size . . . engineered for any farm!

Write for Information

MOULTON IRRIGATION CO.
Withrow, Minn. Dept. FQ-12

pit-type scales.

"It is usually more convenient and economical, too, if you buy a pitless platform scale," he says. Pitless platform scales will weigh up to about 15 tons and cost you from $400 to $600, depending on the size and brand.

Wayne MacKenzie, who has been selling scales for 18 years, says he does not sell as many pit-type stock scales as he did 10 years ago. "Most of the farmers are changing over to the self-contained pitless type because it is so much easier to install," MacKenzie said. "I suppose under average conditions a fellow's total installation time would run a little less than two working days if he does it himself. But in the case of pit-type scales, it usually takes a qualified expert to set the stands and levers the way they should be. It's a very tedious and exacting job and requires proper equipment."

The scale Lon Stuart, the Colorado cattleman purchased, is a good example of the pitless installation. He says, "I set my scale on railroad ties," pointing to four ties on each end. It looks like a bridge about nine inches off the ground balanced on the ties at each end. "The two men who delivered it helped me level the ties. I already had the ties set before they got here, but we had to take them out and re-level them. And I had to get six more ties. I only had two at first. We buried two ties in the ground on each end, then we put the other set of two ties on top. It might have been better if I had built a cement slab on each end, but so far, these ties have held okey."

In the side of his garage (next to which he build the scale), Stuart cut a one-by-two foot hole and hooked onto the weighing mechanism. Through a glass window already in the garage) three feet above the hole, he can look out and see the entire weighing platform. Thus, he was able to house the delicate weighing mechanism which, if left unprotected, sometimes corrodes and distorts weights.

Stuart isn't sure how much it cost him to install his scale, but he figures it cost about $38 including the railroad ties and two-inch planks from which he built the platform.

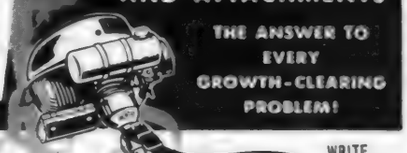
Concerning the type of scale that would fit your particular farm, scale dealer MacKenzie points out that farm scales generally fall into three categories, including (1) a livestock scale, (2) small portable platform scales weighing loads up to 1000 pounds, and (3) milk and poultry scales. Although he represents several scale manufacturers, MacKenzie feels that most well known brands are reliable. "No matter what you buy, you will get what you pay for," he said. "All new scales must pass rigid state inspection, and the prices are almost the same among the different brands when you compare model for model. But remember this: no scale is any better than the service it gets."

To make sure your scale lasts as long as

The 2 h.p. Hoffco PAT. PEND.

POWER UNIT AND ATTACHMENTS

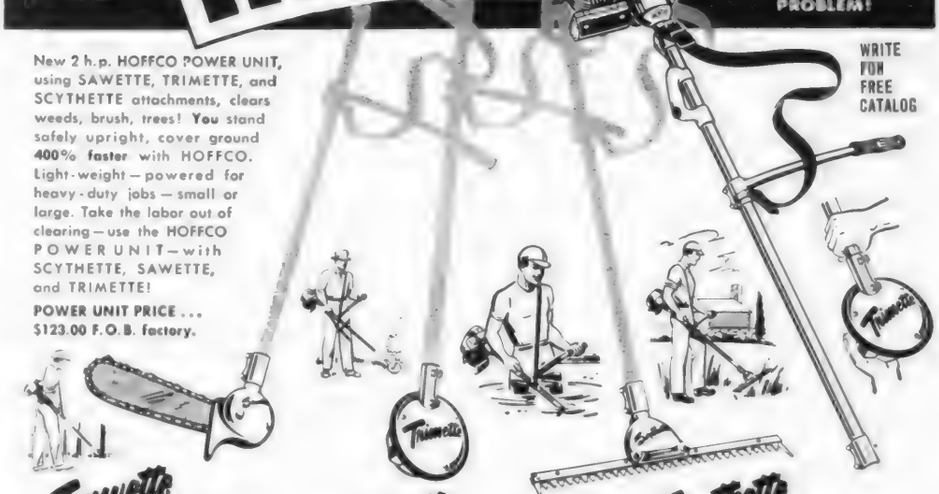
THE ANSWER TO EVERY GROWTH-CLEARING PROBLEM!



WRITE FOR FREE CATALOG

New 2 h.p. HOFFCO POWER UNIT, using SAWETTE, TRIMETTE, and SCYTHETTE attachments, clears weeds, brush, trees! You stand safely upright, cover ground 400% faster with HOFFCO. Light-weight—powered for heavy-duty jobs—small or large. Take the labor out of clearing—use the HOFFCO POWER UNIT—with SCYTHETTE, SAWETTE, and TRIMETTE!

POWER UNIT PRICE ... $123.00 F.O.B. factory.



Sawette

HOFFCO's SAWETTE works easily on smallest brush—or trees up to 8 inches and over in diameter. America's outstanding chain-saw!

CUTTING HEAD PRICE, $64.50

Trimette

Use TRIMETTE to trim near walks, stones, drives! 7-inch blade creates suction, distributes mulch evenly. Save work—with TRIMETTE!

PRICE TO BE ANNOUNCED

Scythette

SCYTHETTE clears weeds anywhere—even under water! Snips off saplings up to ¾-inch in diameter. No job too big or difficult for SCYTHETTE!

CUTTING HEAD PRICE, $39.75

Hoffco, inc. ALL PRICES F.O.B. FACTORY RICHMOND, INDIANA

SACCO-FED CHAMPION

from Tiny Acres Pony Stables

Silver Flash — winner of five blue ribbons. Sire: Sunlight Larigo. Grandsire: King Larigo.

Silver Dappled Chestnut Shetlands are a specialty at Tiny Acres Pony Stables, Ashland, Ohio — and Silver Flash is one of the finest. Owners Mr. & Mrs. Frank R. Smith give a lot of credit to their carefully planned feeding program and Sacco V-19 Mineral. Sacco keeps all livestock in better all-round condition, increases vitality, steps up production and aids reproduction. Sacco V-19 is complete, balanced and 24,000 units of Vitamin D are added to every pound. Ask your Sacco dealer.

SACCO V-19 MINERAL FEED

THE SMITH AGRICULTURAL CHEMICAL CO.

Plants at Columbus, Ohio; Indianapolis, Ind.; Saginaw, Mich.; Holland, Mich.; Carey, Ohio.

More Gallons for modern living!

Increase outdated water supply with a new

DELCO WATER SYSTEM

Has your water system kept up with the way you're living? More livestock, larger family, new automatic appliances gobble up extra gallons your old system can't handle efficiently or economically.

Bring your water supply up to date with a new Delco Water System. General Motors engineered to deliver more gallons for less money. Delco pumps are simple, trouble-free . . . guaranteed capacity assures delivery of every gallon promised, or more.

Why not get our FREE *Water Survey right now. Just phone your nearest Delco dealer. Or for* FREE *illustrated literature, write Dept. FQ, Delco Appliance Division, General Motors Corp., Rochester 1, N.Y.*

GENERAL MOTORS DELCO WATER SYSTEMS

DIG HOLES

SITTING DOWN

FENCE POSTS • FOUNDATIONS • SEEDLINGS
TRANSPLANTING • MANY OTHER USES

A Danuser Digger will save you time, labor, and money on every earth drilling operation. Augers from 4" to 24" dig holes for all purposes in less than a minute each. Satisfied users report over 500 holes per day. Simple, one-man operation. Strong, durable construction. Tested and approved by tractor manufacturers.

WRITE FOR LITERATURE pertaining to your model tractor.

Manufactured by

DANUSER MACHINE CO.

508-09 East 3rd Street • Fulton, Missouri

"Contributing to Farm Mechanization"

possible and maintains accuracy, Morris Taylor, USDA western regional livestock marketing specialist, suggests the following five points for daily care of a much-used livestock scale:

1. Brush dust and dirt from the beam and poise.
2. Oil with a light oil and wipe dry for smooth operation.
3. Check platform for binding or sticking.
4. Check balance of the scale to see that it operates correctly.
5. Weigh a man or object of known weight two or three times to see if the scale repeats weights correctly.

For periodic care, Taylor suggests:

1. Check the notches on the weighbeam to see if they are sharp and clean.
2. Clean the poises to see if they are set exactly in the notches.
3. Check links on the beam rod and see that they are oiled.
4. Have the scale checked and sealed by the State Inspector.

Scale companies in your area will be listed in the yellow pages of your telephone book and will include such manufacturers as American Scales Company, Kansas City, Missouri: John Chatillon and Sons, 93 Cliff Street, New York 38, New York: W. C. Dillon and Company, 14620 Keswick Street, Van Nuys, California: Fairbanks, Morse & Company, 600 South Michigan Avenue, Chicago, Illinois: The Howe Scale Company, Rutland, Vermont: and Winslow Government Standard Scale Works, 25th and Haythorne Avenue, Terre Haute, Indiana.

If you have any doubt about accuracy, here are three quick ways to check a scale:

1. Weigh an object of known weight. A man, horse, or car might be weighed. They should be weighed at various spots on the scale, and the same weight should be obtained regardless of where the weight is.
2. Test large and small weights on the scale. Some scales weigh accurately under light weights but erroneously with heavier weights. To do this, weigh a draft of livestock, then weigh them back singly.
3. Watch the beam to see how readily it responds to a change. To do this, place a normal load on the scale, then add a small object of known weight. The beam should rise. Then remove the object and see if the beam will drop.

If you suspect a public scale, report it to your State Department of Weights and Measures or to the Packers and Stock Yards Division before the evidence disappears or is forgotten.

THE AUTHOR: Neil K. Holbrook was born on a farm in southern Idaho some 30 years ago. He was graduated from the Utah State Agricultural College and later served there as Extension Editor. He is now Information Specialist at the University of California. Some time ago Holbrook suddenly found himself to be an expert when his former neighbor and friend, Ezra Taft Benson, was chosen Secretary of Agriculture. In the months since Benson's appointment, Holbrook has probably written more about the Secretary than any other writer. Holbrook also served the Secretary briefly as a speech writer.

HASCO EAR TAGS

CATTLE SHEEP AND HOGS

No. 136

Used by U. S. Dept. of Agriculture, State Depts. and prominent breeders. Pliable, rust-resistant steel.

FREE SAMPLE

ORDER NOW:—PRICES INCLUDE NUMBERING

No. 136 SALE TAG		EAR TAGS		
Quantity	Price	Quantity	Hog, Sheep	Cattle
100	$1.80	50	$1.80	$1.95
500	7.95	100	3.00	3.40
1000	13.00	300	8.50	8.20

F. O. B. Newport, Ky. Applicator $2.00

Stamping name and address on any quantity of tags. SEND FOR BULL RINGS, CATTLE LEADS, ETC. SEND FOR PRICES

National Band & Tag Co., Dept. 6-699, Newport, Ky.

THE Cyclone

Power Seed and Fertilizer Distributors

ECONOMICAL and DEPENDABLE, pay for themselves with fast, easy broadcasting of grass seed (including brome), grain and fertilizer. P.T.O. or motor driven. 1 to 5 bushels capacity. Send for free *literature* and *informative grass land booklet.*

THE CYCLONE SEEDER CO., INC.
Urbana 12, Indiana, U. S. A.

KILL RATS WITH warfarin

WISCONSIN ALUMNI RESEARCH FOUNDATION

GOOD HOGS

Purebred Hampshires for foundation stock. Open gilts $75: boars $100: weanling pigs $100 a pair, unrelated: includes Pedigree, transfer papers and weanling pigs. Real beauties for sale. 100% Bang tested herd. Double immune from cholera. If you want to improve your present herd, Ferndale has your animal. Count the hogs you see with a belt around 'em. Hamps breed well with any kind of healthy hog.

ARTHUR B. EVANS
Ferndale Farms, Cedarville, Ohio
Purebred Hamps available since 1915

NO MORE "HARD WATER RASH"

We have a DIAMOND Water Softener

SEND FOR THIS BOOKLET

A DIAMOND Water Softener removes [illegible] water [illegible] soft water cuts the work in laundering and dishwashing.

Oshkosh Filter & Softener Co.

ADVERTISERS' INDEX • WINTER

A Guide to Quality-Merchandise and Service

Agricultural Labs 124
Allied Mills, Inc. 3
Allis Chalmers Co. 31
Alprodco 136
Aluminum Co. of America (Irrigation) 88
Aluminum Co. of America (Roofing) 89
American Aberdeen Angus 84
American Agricultural Chemical 11
American Bee Journal 111
American Berkshire Association 114
American Brahman Breeders 86
American Corriedale Assoc. 130
American Crop Drying 140
American Guernsey Cattle 125
American Hampshire Sheep Assn. 116
American Milking Shorthorn Society 120
American Shorthorn Breeders Assn. 100
American Society of Farm Managers 120
W. R. Ames 124
Anchor Serum Co. of Indiana 138
Anchor Serum of Missouri 85
Ariens Company 131
Armour Fertilizer Works 127
Aro Equipment Co. 90
Atkins Saw Div. Borg & Warner Co. 102
Avery C. T. 128

Babson Bros. Co. 4
Behlen Mfg. Co. 123
C. S. Bell Co. 98
Belsaw Machine Co. 84
Beltraction Co. 122
Howard Benoy 103
The John Blue Co. 130
Bostrom-Brady Mfg. Co. 84
Bountiful Nurseries 138
N. P. Bowsher Co. Inc. 120
The Boyt Co. 104
Breeders Supply & Equipment Co. 96
Bridgeport Implement Works 100
Brillion Iron Works, Inc. 80
Burch Plow Works 111
Burlingame, Field, Pierce & Brown 93
W. Atlee Burpee 108
Butler Mfg. Co. 16, 17

California Stockmens Supply Co. 84
Campbell Hausfeld Co. 110
J. I. Case Co. 19
Century Engineering Corp. 139
Champion Corp. 91
Choremaster Division 121
Clayton & Lambert Corp. 104
Cobey Corp. 111
Craine, Inc. 114
Crayden's Hatchery 124
Creighton Bros. 114
Cyclone Seeder Co. 142

Danuser Machine Co. 104, 130, 142
Deere & Co. 29
DeKalb Molasses Co. 118
Delco Div. G.M.C. 142
Deming Co. 106
Doane Agricultural Service, Inc. 97
Douglas Fir Plywood Assoc. 84
Dow Chemical Co. 82
Dunham Co. 103
Duplex Mill & Mfg. Co. 134

Early & Daniel Co. 86
Eaton Mfg. Co. (Eaton Axle) 15
Edwards Laboratory 139
Electric Auto-Lite Corp. 6
Cheston L. Eshelman Co. 124
Ezee Flow Corp. 115

Fairbanks Morse & Co. 116
Farm Book Store 144
Farm Tools, Inc. 86
Ferndale Farms 142
A. T. Ferrell & Co. 113
Earl Ferris Nursery 106
Fitchburg Engineering Corp. 135
Ford Truck Division 138
Fox River Tractor Co. 81

Gasson's Poultry Farm 93
Gehl Bros. 105, 118
General Electric, Conn. 94
Golden Egg Goose Farm 126
Golden Rule Hatchery 118
The B. F. Goodrich Co. 9
The Goodyear Tire & Rubber Co., Inc. ..... 2nd Cover
Gorman-Rupp Co. 110, 133
Gravely Motor Plow 129
Great Lakes Steel Corp. 28

Hahn, Inc. 117
Hall Bros. Hatchery, Inc. 110
Hampshire Swine Registry 114
Hardie Mfg. Co. 107
Jos. Harris Co., Inc. 116
Hartzell Propeller Fan Co. 131
Heil Mfg. Co. 87
Helix Corp. 100
Dr. Hess & Clark, Inc. 104, 106
John W. Hobbs Corp. 136
Hoffco, Inc. 141
Hoover Soil Service 140
Hotchkiss Steel Products 128
Hubbard Farms, Inc. 130

International Harvester Co. 1
International Minerals & Chemical Corp. 136
International Salt 122

Jacuzzi Pump Co. 120
James Mfg. Co. 92
Jari Products Co. 134

Katolight Co. 134
Ketchum Mfg. Co. 128
King-Wyse, Inc. 124

L.M.L. Engineering & Mfg. Corp. 132
Lantz Mfg. Co., Inc. 130
Lederle Laboratories 26
Loudon Machinery Co. 98

The MacMillan Co. 110
Marlow Pumps 123
Martin Steel Corp. ..... 3rd Cover
Massey Harris Co. 13
J. R. Mayner & Co. 103
McDowell Mfg. Co. 128
Merchants Creamery 118
The Meyer Mfg. Co. 118
Midland Corp. 128
Milwaukee Equip. Mfg. Co. 116
Minneapolis Moline Co. Back Cover
Mojonnier Bros. Co. 126
The Monroe Co. 124
Moore Mfg. Co. 134
Morton Salt Co. 143
Moulton Irrigation Co. 112, 140
Muellers Stockmen's Supplies 114
Musser Forest, Inc. 136

National Agricultural Supply Co. 138
National Band & Tag Co. 142
National Rainbird Sales & Eng. Corp. 102
National Molasses Co. 117
New Holland Machine Co. 95
New Idea Div. AVCO Mfg. Corp. 25
Nichols Poultry Farm 138
Nitragin Company 132
Nitrogen Div. Allied Chemical & Dye Corp. 24
Nutritional Research Assoc., Inc. 110
Nut Tree Nurseries 126

D. W. Onan & Sons, Inc. 126
Opekasit, Inc. 132
Ortho Pharmaceutical Corp. 126
Oshkosh Filter & Softener Co. 142

Papec Machine Co. 91
Joe Parks & Sons 134
Perfect Circle Corp. 10
Pioneer Hi-Bred Corn Co. 134
Plastex Pipe & Ext. Co. 94
Portland Cement Assoc. 83
Potash Rock Co. of America 30
Prentice Hall, Inc. 138
Proto Tool Co. 80

Rebo Mfg. Co., Inc. 104
Red Poll Cattle Club of America 138
Rilco Laminated Products Co. 109
Robson Seed Farms 84
Roseland Poultry Farm 100
Roto-Hoe & Sprayer Co. 144
Rototiller, Inc. 21

Safgard Division 114
St. Paul Hydraulic Hoist Div. 135
Scott's Farm Seed Co. 124
Jos. E. Seagram & Sons, Inc. 7
Seaman Motors, Inc. 99
Security Mfg. Co. 128
Shox-Stok, Inc. 120
Shur-Rane Irrigation Corp. 2
Skinner Irrigation Co. 133
Smith Agricultural Chemical Co. 141
South Michigan Nursery 128
Spohn Medical Co. 140
E. R. Squibb & Sons 8
State of Florida 98
Stone Mountain Grit Co. 14
The Stoody Co. 126
Sudbury Laboratories 23, 140
Sunbeam Corporation 112
Sunbeam Hatchery 116

Tennessee Corp. 107
Tokheim Oil Tank & Pump Co. 97
Turkey Ridge Farm 96

U. S. American Fence 20
U. S. Industrial Chemical, Inc. 119
U. S. Steel Co. 101
United Steel Fabricators 18
University of Oklahoma Press 112

Vickers, Inc. 12
Virginia Carolina Chemical Co. 27
Jos. A. Vogel Co. 122
Vulcan Hart 126
Vulcan Press 93

R. M. Wade & Co. 113
Whitten Nurseries 91
Willoughbys, Inc. 129
Wisconsin Alumni Foundation 142
Wisconsin Motor Corp. 108
Woodbine Farms 130
Wood Products Co. 132
E. H. Wright Co., Ltd. 91
Wyeth, Inc. 22, 137

Yardley Plastics Co. 125

Farm Quarterly, 22 East 12th St., Cincinnati 10, Ohio

Advertising Offices: NEW YORK CITY, Harold C. Weltner, 38 W. 53rd; CHICAGO, B. A. Rosenthal, 333 North Michigan Blvd.; DETROIT, Waldo E. Fellows, Stephenson Building; KANSAS CITY, MISSOURI, W. M. Temple, 1012 Baltimore Ave.; OHIO & INDIANA, Harry Dunnohew, 22 East 12th St., Cincinnati, Ohio. Publisher: Automobile Digest Publishing Corp., Aron M. Mathieu, Vice President; H. C. Dunnohew, Advertising Manager; Frederic B. Knoop, Circulation Manager. Member A.B.C.

Reasons Why

Livestock are always more profitable with Morton Trace Mineralized Salt

WITH the ever narrowing spread between production costs and market prices for livestock and livestock products, it's more important than ever to do an economical, effective feeding job. With Morton Trace Mineralized Salt livestock do a better job of feed conversion. They require less feed per 100 pounds of gain . . . gain weight faster . . . cost less to fatten and finish.

That's because Morton Trace Mineralized Salt supplies the iron, copper, cobalt, manganese, iodine and zinc—the trace minerals — so often deficient in natural grains, grasses and forage.

These trace minerals help the enzyme, vitamin and hormone functions which control all life activities. Without trace minerals livestock react poorly . . . growth, repair and reproduction aren't as efficient as they might be. Feed consumption is higher, gains slower . . . feed conversion poor, feed costs higher.

In addition, Morton Trace Mineralized Salt supplies the sodium and chlorine of salt so vital to good digestion and assimilation of feed . . . to proper use of proteins, fats and carbohydrates.

It costs only a few cents more per animal per year to get the extra benefits of Morton Trace Mineralized Salt.

Why not start on the road to lower feed costs and better livestock profits today. Ask your dealer for Morton Trace Mineralized Salt. He has Morton T-M Salt in stock. Ask for it by name — feed it free choice.

Fed MORTON TRACE MINERALIZED SALT livestock are healthier, thriftier. Their frames are bigger to carry more muscle tissue.

By controlling and stimulating the vitamin, enzyme and hormone functions, the trace minerals help livestock get more value from proteins, grasses and forage.

With Morton Trace Mineralized Salt, animals gain weight faster, with less time between weaning and market. They grade out better, make more profit.

The trace minerals are vital to reproduction . . . to preventing breeding failure. Young are more vigorous, healthier. Mother animals produce more milk.

MORTON *Free Choice*
TRACE MINERALIZED SALT
for Healthier, Thriftier Livestock

FREE . . . This 32-page booklet gives you complete facts on feeding salt and trace minerals to all classes of animals. Mailed Free and postpaid. Morton Salt Co., P. O. Box 781, Chicago 90, Ill.

2 h.p. as shown only **$134** complete

Ask your dealer for a demonstration; or write us today for informative illustrated folder and name of nearest dealer.
(A few dealer franchises are still available.)

ROTO-HOE
GARDEN TOOLS

America's Most Usable Garden Tool!

TILLS — CULTIVATES — COMPOSTS

Tens of thousands of users find ROTO-HOE ideal for year 'round jobs. A big machine at modest cost, thoroughly engineered and field proven for over 7 years! It will pay you to investigate.

YEAR 'ROUND ATTACHMENTS
use same basic power unit!

20" ROTO-CUTTER, only $34.50
12" TRIMMER-MULCHER, only $24
16" ROTO-SNO BLOWER, only $38
5 gal. ROTO-ZEPHYR SPRAYER, only $77
Adapta-Cart, for mounting compressor, generator, other tools for easy portability, only $11.50

ROTO-HOE & SPRAYER COMPANY
Box 7 Newbury, Ohio

FARM BOOKS

(*Continued from page* 20)

the term farm law, as he uses it, does not describe a particular division of law, but is simply a way of calling attention to some of the legal rules that are of importance to farmers.

Divided into four parts, the first of which treats of the idea of law itself and the development of our system of jurisprudence, the book disposes of the farmer's legal problems under the three headings of problems when acquiring or transferring a farm, problems of inheritance, and legal problems when operating a farm. An appendix contains a number of forms important in farming transactions.

Reading this book won't entitle you to hang out your shingle in the county seat, but it may keep you from making an unwilling appearance in the courtroom.

The Farm Book Store

Books are the perfect gift, they add to the joy of Christmas and are steadfast companions to help make the new year prosperous.

SOIL AND CROPS

The Pasture Book—*by W. R. Thompson* $3.50
Revised edition, the 8th since 1949, of this information-packed book.

Vegetable Growing—*by J. S. Shoemaker* $6.00
For truck farming or garden information this book is hard to beat.

Grasses and Grassland Farming—*by Hi W. Staten* $5.00
One of the best books on practical grass farming.

Production of Field Crops—*by Hutcheson, Wolf & Kipps* $6.50
A new edition makes this the latest work on American field crops.

Forages—*edited by Hughes, Heath, & Metcalfe* $6.75
52 experts produce a book that covers grass farming for the nation.

Colorstrip Plant Testkit $4.00
A compact, accurate tissue testing kit that can be carried in the pocket. Tells whether your crops are getting enough nitrogen, potassium and phosphorus to make good growth and produce high yields. Complete instructions come with the kit.

Soils and Fertilizers—*by Firman E. Bear* $4.50
An understandable book on the complex subject of fertility.

Using and Managing Soils—*by A. F. Gustafson* $3.40
Fertility, rotation, drainage, erosion, tillage are covered.

Hunger Signs In Crops—*A Symposium* $4.50
How to diagnose fertility needs from the plants themselves.

Irrigated Soils—*by Thorne and Peterson* $5.50
The practice of irrigation and the management of irrigated soils.

Complete Herb Grower's Kit—*by Rosella Mathieu* $3.50
Growing, blending and marketing herbs; includes seeds and samples.

LIVESTOCK

Dual-Purpose Cattle—*by Claude H. Hinman* $5.00
Breeding, feeding, and handling the milk-beef breeds.

Restraint of Animals—*by J. R. Leahy & P. Barrow* $3.75
Line drawings and text tell how to hold animals for treatment.

Breeding Better Livestock—*by Rice, Andrews & Warwick* $6.50
Practical genetics for the livestock breeder.

The Hog Annual—*by the editors of Farm Quarterly* $5.00
The latest articles and breeders' lists available to date.

A Veterinary Handbook for Cattlemen—*by J. W. Bailey* $5.00
For that emergency when you can't reach the veterinarian.

Raising Swine—*by G. P. Devoe and J. L. Krider* $4.75
A practical new book on breeding, feeding, and marketing hogs.

The Livestock Book—*by W. R. Thompson et al* $3.50
This is the sequel to the best selling *Pasture Book*. It's a good one.

Feeds and Feeding (21st ed.)—*by F. B. Morrison* $7.00
The authoritative book on livestock and poultry feeding.

Dairy Science (2nd ed.)—*by W. E. Petersen* $6.00
A new edition of one of the best and most complete books on dairying.

Beef Cattle—*by Roscoe R. Snapp* $6.50
A carefully revised edition of this excellent book on beef production.

Successful Poultry Management—*by M. A. Jull* $5.00
The second edition of this practical book on poultry.

FARM MANAGEMENT

Law and The Farmer—*by Jacob H. Bauscher* $4.95
Farm ownership, inheritance, and legal problems of the farm.

The Business of Farming—*by DeGraff and Haystead* $3.00
A sound book on the problems of farm management.

Soil Development—*by E. H. Faulkner* $3.00
The author of *Plowman's Folly* starts another controversy.

Farm Records and Accounts—*by J. N. Efferson* $3.75
A practical book on keeping and using farm records.

A Practical Guide for the Beginning Farmer—*by Herbert Jacobs* $3.00
A book to give you an intelligent start in farming.

Modern Farm Management—*by Andrew Boss & G. A. Pond* $6.00
The principles and application of management to the farm.

The Farmer's Handbook—*by John M. White* $4.95
Easy reference book on crops, livestock, and farm problems.

Shopwork on the Farm—*by M. M. Jones* $4.50
An excellent reference and how-to-do-it book for the shop.

, THE FARM BOOK STORE
c/o "The Farm Quarterly" S
22 E. 12th Street
Cincinnati 10, Ohio

I enclose (check, money order or cash) for the following books. Please send them to me immediately.

_____ _____
(Title of book) (Price)

_____ _____
(Title of book) (Price)

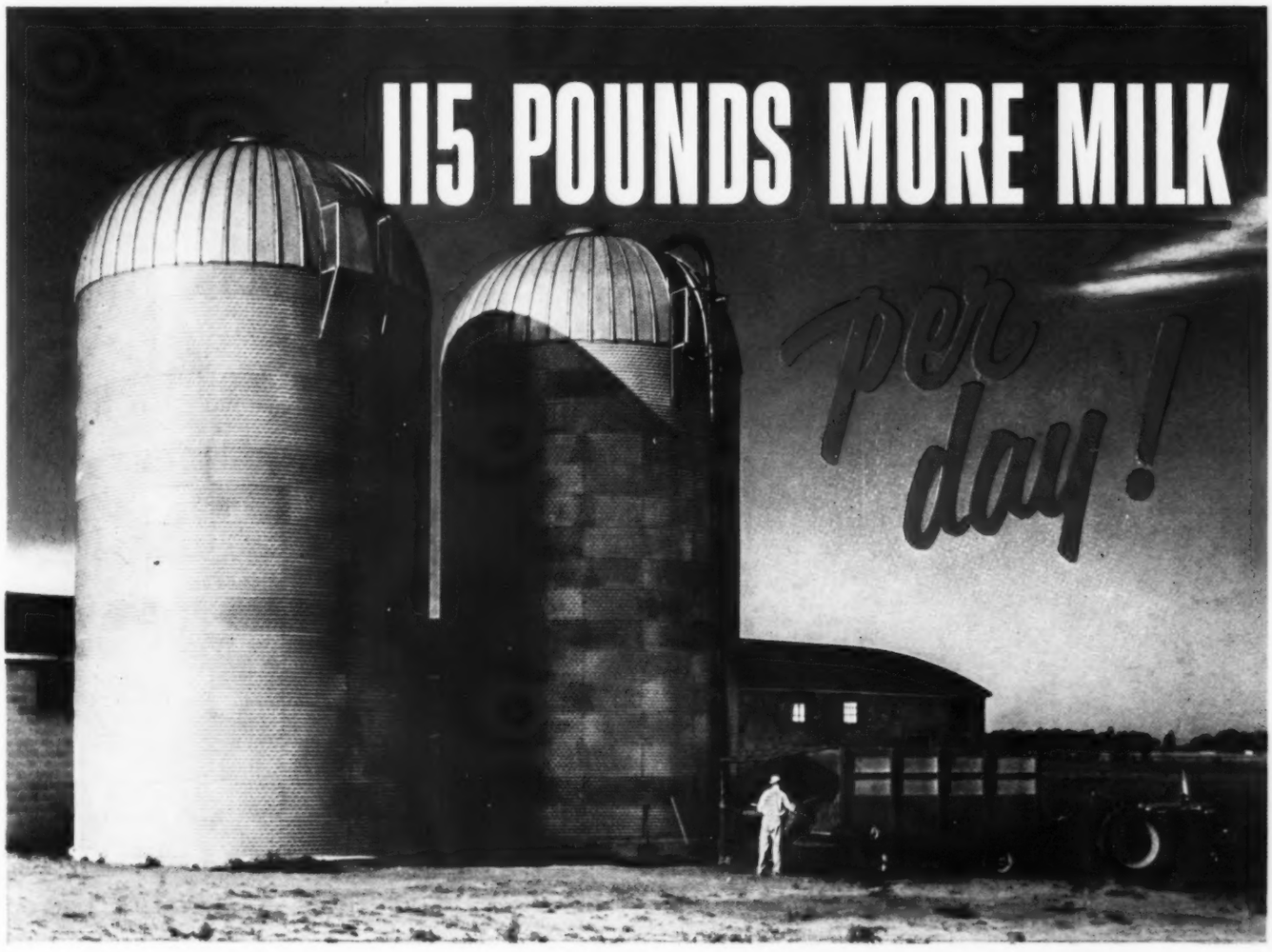
and enter my subscription to "Farm Quarterly"
☐ **1 Year $2.00** ☐ **2 Years $3.50** ☐ **3 Years $5.00**

Name _____

R.R. or Street _____

City _____ State _____

Your order will be sent to you postpaid. *(Buyers living in Ohio should add 3% to price for sales tax. All prices subject to change.)*



...that's how modern haymaking boosted 18 cows' production for A. G. Herman!

"We now have three Martin Haymakers," says modern farmer A. G. Herman, Waynesfield, Ohio, "the first one we purchased now being used for its fifth season. We have run tests each year for four years, and each year we've found that hay made in the Haymakers raised production of the cows a considerable amount over baled field-cured hay.

"This last winter we milked 18 cows. And when we finished feeding all that was in one Haymaker and started feeding second and third cutting baled hay the cows went down approximately 115 pounds per day. In other words, the hay produced in the Martin Haymaker raised the production of the 18 cows about 115 pounds per day. We make two to three times more hay per day by this method than we could by baling."

You, too, will find farming more profitable . . . with new, modern Martin methods of conditioning and storing your crops. Coupon brings the profit-proved facts.

MAIL COUPON FOR FREE ILLUSTRATED FOLDERS...NOW!

MARTIN STEEL PRODUCTS CORPORATION
1603 Longview Ave., Mansfield, Ohio

Send free illustrated folders checked:

- ☐ HAYMAKERS
- ☐ SILOS
- ☐ CORN STORAGE
- ☐ GRAIN STORAGE
- ☐ BARNS AND ARCH BUILDINGS

NAME_____

STREET OR R.F.D._____

TOWN_____

STATE_____

5218

TALK ABOUT PERFORMANCE!

...you get 45 H.P. at the drawbar...

...the NEW 3-4 plow MM UB tractor

Hitched to the UB tractor, this Moline-Monitor grain drill covers ground at a profit-boosting clip. Accurate, uniform seeding starts your crop right.

Here's high-compression power that *never says no!* With full 45 horsepower at the drawbar, the new-power, new-performance Minneapolis-Moline UB tractor pulls 4 plows with ease in 9 out of 10 fields. In even the heaviest plowing, the UB handles 3 bottoms with plenty of reserve for hills or hard spots. High turbulence combustion and controlled pressure cooling let you drive the UB at full-power all day long, offer fuel economy that proves itself in money saved, money made.

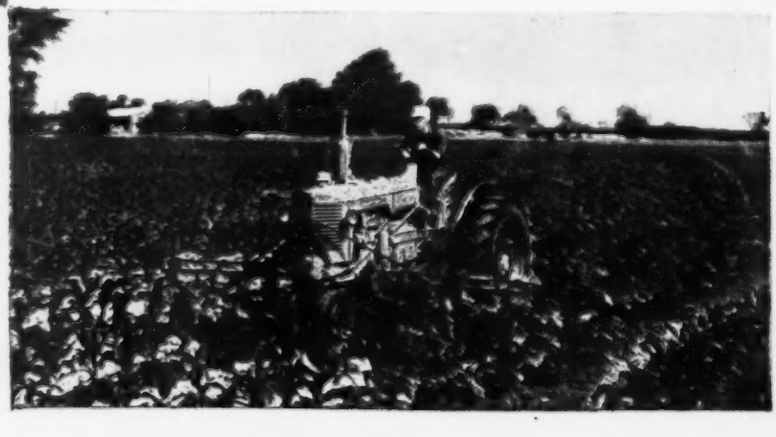
EASIER TRACTOR DRIVING! LASTING TRACTOR POWER!

Behind the wheel of the UB tractor, you're *way up* out of the dust and heat; you have clear visibility on every side. Brakes, clutch, gear shift, and steering wheel . . . belt pulley, power take-off, and Uni-Matic control levers . . . throttle, choke, and ignition—*all* are handy to your reach. A powerful 12-volt electrical system, "new car" steering, shock-free "floating ride", and sealed split-beam lights are just a few of the many advantages that make the UB a *new* experience in tractor driving.

See for yourself how much *more* tractor the powerful new MM Model UB gives you. Ask your MM dealer *today* for a demonstration on *your* farm.

This MM TFA Field Cultivator powered by the UB makes a combination that's death on quack grass and bind-weed . . . leaves your field ready to soak up and store rain.

Mount this MM 4-row cultivator on the UB and you're set for thriving row crops . . . bumper yields. Center-line steering lets you see your work on both sides of the tractor.



MODEL UB Tractors available in 3 front-end models . . . for gasoline or LP Gas operation. See your MM dealer for full profit facts.

MINNEAPOLIS-MOLINE MINNEAPOLIS 1, MINNESOTA